California MEDICINE

FEBRUARY 1949

OFFICIAL JOURNAL
OF THE CALIFORNIA MEDICAL ASSOCIATION

UME 70 NUMBER 2

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(1) Kramer, B., Sobel, A. E. and Gottfried, S. P. SERUM LEVELS OF VITAMIN A IN CHILDREN. Am. J. Dis. Child. 73:543 (1947)

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VOL. 70 FEBRUARY 1949 No. 2

Hodgkin's Disease

A Clinical-Pathological Review of 150 Cases

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SUMMARY

One hundred and fifty cases of Hodgkin's disease were analyzed in an effort to detect significant clinical-pathological correlations and to elucidate any possible factors of prognostic or etiological importance.

A relatively long survival for patients with Hodgkin's paragranuloma was not noted in this series. Instead the survival rate among them was closely parallel to that of patients with classical granuloma. Hodgkin's sarcoma is a more malignant disease with a patient survival rate not more than half that of patients with the granuloma variety. It is not necessarily a disease of older age groups. Great caution must be exercised to avoid including non-Hodgkin's disease tumors under the heading of Hodgkin's sarcoma or paragranuloma.

The series reported corresponds with many other reported series of Hodgkin's disease as regards greater incidence in males and longer survival in females. In this series the cases in patients under the age of 15 were all in males. The predominance of initial enlargement of the cervical nodes was again noted in this series, as was the high proportion of negative reaction to tuberculin tests. The incidence of tuberculous lesions in patients who died of Hodgkin's disease was only slightly greater than in those who died of other lymphoma. Site of origin of the disease apparently affects survival time. There was statistical evidence that gonadal activity might influence the equilibrium of the disease.

Lymph node bacteriological cultures were not remarkable. Brucella organisms were absent. Fertile egg passages for detecting possible viral agents revealed increased egg mortality and cutaneous sensitivity reactions to the harvested amniotic fluid.

IN THE last 25 years there have been studied at the University of California Hospital 150 cases of microscopically proven Hodgkin's disease. From this group, biopsy slides are available from 123, and 33 complete autopsy examinations have been done. This material is being critically reviewed with the object of comparing its characteristics with other reported series of Hodgkin's disease cases, of elucidating certain details of histologic-clinical correlation, and of searching for any factors of possible prognostic or etiologic import. In a subsequent paper[3] the finer details of the microscopic characteristics of this same material will be presented.

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Presented before the Section on Pathology and Bacteriology at the 77th Annual Session of the California Medical Association, San Francisco, April 11-14, 1948.

HISTOLOGIC CLASSIFICATION

For the diagnosis of classical Hodgkin's disease the presence of Sternberg-Reed giant cells, fibrosis, abnormal lymph node pattern and eosinophils is required. From this prototype, two variants have been gradually defined, one possessing superficially many of the characteristics of a small cell lymphosarcoma, and the other possessing many character-

istics of a bizarre reticuloendothelial sarcoma. The classical type of Hodgkin's disease has been quite uniformly referred to as Hodgkin's granuloma, and the bizarre cellular and malignant-looking reticuloendothelial variant as Hodgkin's sarcoma (Hodgkin's lymphoreticuloma, Bersack[2]). That variant presenting the resemblance to lymphocytic lymphosarcoma has been called Hodgkin's lymphoma, Bersack[2]; atypical Hodgkin's, Warthin[23]; "early Hodgkin's disease"; or, more recently, paragranuloma, Jackson and Parker.[11]

Pre-Hodgkin's disease changes in lymph nodes have been described, consisting of reticuloendothelial hyperplasia and distortion of the lymph node pattern. However, these are by no means specific, and their significance is doubtful. In fact, a positive diagnosis of Hodgkin's disease cannot be made in the absence of Sternberg-Reed cells. In their absence, to be pleased with having correctly guessed the subsequent development of a Hodgkin's disease process is to ignore the many times that the diagnosis of Hodgkin's disease without Sternberg-Reed cells will have been an error. In the slides examined for this report, no characteristic "pre-Hodgkin's disease" changes could be identified in lymph nodes immediately adjacent to nodes frankly involved with Hodgkin's disease, nor in uninvolved portions of a partially diseased lymph node.

Although the microscopic separation of Hodgkin's disease into paragranuloma, granuloma and sarcoma varieties is justified and well established in the literature, it is not possible, after reviewing the material in this paper, to entirely support the statement by Jackson and Parker[11] that "It should become clear . . . that any description [of Hodgkin's disease] that includes all three [variants] as a single form of the disease must, of necessity, be inaccurate and of little practical value."

In the first place, statistically drawn conclusions regarding data from the two marginal variants (paragranuloma and sarcoma) of Hodgkin's disease must be made with great care. The very fact that they are variants of a classical type infers that they likewise merge imperceptibly with structurally similar tumors that are not Hodgkin's disease. It is this very merging of structural types that has led so many workers to feel that Hodgkin's disease is not an entity, but instead is a variety of lymphosarcoma, and of similar etiological background. It follows that in collecting examples of Hodgkin's paragranuloma and Hodgkin's sarcoma, certain errors are bound to creep in which will contaminate statistical analyses. It is quite possible that the only Hodgkin's lymphomas and Hodgkin's sarcomas that are completely beyond suspicion are those examples which have passed through or developed into a proven Hodgkin's granuloma stage.

This error in classification is most likely to be made in the case of Hodgkin's sarcoma, because of the tendency to place in that category many poorly defined pleomorphic and large-celled reticuloendothelial sarcomatous tumors. Such being the case, it is likely that any reported series of so-called Hodgkin's sarcoma will be somewhat contaminated with non-Hodgkin's disease cases, and thus tend more nearly to approach the usual sex ratios and age incidence of lymphosarcomas in general.

Hodgkin's paragranuloma variant may rather closely resemble a malignant lymphocytoma. In any series of Hodgkin's paragranuloma, it is likely that some will actually be malignant lymphocytoma, and not Hodgkin's paragranuloma. Some may maintain that the presence of Sternberg-Reed cells proves the diagnosis. That is almost correct. Unfortunately, however, these cells are only peculiar types of reticuloendothelial cells, which, although highly characteristic, do present variations, and are not absolutely pathognomonic. This thus permits certain individual interpretations as to their presence or absence.

Of the 11 cases in this series in which the patients showed the longest survival (5 to 14 years), in only one did biopsy reveal the characteristics of the paragranuloma variant—and in that case the patient survived only five years. In nine of these cases the specimen showed the classical Hodgkin's granuloma pattern, and in one (with the patient having a five and one-half year survival) the lesion commenced as a giant follicular lymphoma tumor. These data do not support the thesis of a relatively prolonged course of the disease with the Hodgkin's paragranuloma variant, although admittedly the number of patients studied is too small to be statistically conclusive.

An analysis of the seven cases diagnosed at the time of the original biopsy as Hodgkin's sarcoma reveals that the mean survival time was eight months from the onset of the disease. This more rapid course for Hodgkin's sarcoma has been frequently noted. The average age of patients in this group of cases is 27 years, and five of them were males.

AGE AND SEX INCIDENCE

Hodgkin's disease may occur at any age. The youngest patient of record was autopsied at four and one-half months of age, and was presumably born with the disease. The case was described by Priesel and Winkelbauer,[17] who state that one month before the infant's birth, a lymph node removed from the mother was diagnosed as a lesion of Hodgkin's disease. The mother died but autopsy was not done.

In this reported series, the greatest age at the time of onset was 73 years and the least was seven years. The age distribution data (Table 1) compares favorably with those reported in the literature (Wallhauser,[22] Baker[1]), and the tendency for the onset before the age of 40 was evident.

The ratio of males to females, 2.4:1, was similar to that found throughout the literature. Below the age of 15 there were 13 cases, all in boys. This very great predominance of males in this age group has been noted by Goldman[10] and Smith,[19] and to a lesser extent by Jackson and Parker.[11]

TABLE 1.—*Age of Patients at Onset of Hodgkin's Disease*

Age in Years	*Males**	*Females†*	*Total*
1-10	7	0	7
11-20	10	3	13
21-30	31	13	44
31-40	20	10	30
41-50	20	6	26
51-60	11	10	21
61-70	5	2	7
Over 70	2	0	2
Total	106	44	150

*Youngest, 7; oldest, 73.
†Youngest, 15; oldest, 65.

CLINICAL CHARACTERISTICS

The average patient noted on his first entry between two and three signs and symptoms; 4.5 per cent had only one, 25 per cent noted two, and 44 per cent indicated three complaints. As shown in Table 2, malaise was most frequently referred to (17 per cent). Cough was next (10 per cent), then night sweats, weight loss and dyspnea (7 per cent each) were noted. Following the incidence of fever (6 per cent), abdominal pain, back pain, neck, arm or shoulder pain and locally enlarged nodes were each noted by approximately 5 per cent of the patients. In six cases (2 per cent) the disease was diagnosed before any signs or symptoms were noted by the patient (see Table 2).

The location of the originally noted tumors (Table 3) was much as that reported by other observers (Baker,[1] Slaughter and Craver,[18] Smith[19]), with the most frequent sites of apparent origin being in the neck. There is nothing in these data which supports Symmer's[20] statement that the deep nodes are probably ten times more commonly affected than the superficial nodes. Although, as in other series, the left cervical nodes were clearly the site of most frequent origin, there was little else to support the occasionally suggested explanation that the greater incidence of left neck tumors is related to the emptying of the thoracic duct on that side, and hence may represent a spread of the disease from some internal site via that duct to the neck. One point against the theory that the frequency of cervical node involvement by Hodgkin's disease may be explained by a nasopharyngeal "portal of entry," is the rarity of tonsillar and pharyngeal Hodgkin's disease.

TUBERCULOUS, SEROLOGICAL AND OCCUPATIONAL HISTORIES

In 121 patients with Hodgkin's disease a family history of tuberculosis was obtained in 15 per cent. In California the figure for similar data in the normal population is 0.5 per cent (Telford and Gartin-White[21]). In spite of repeated attempts to connect Hodgkin's disease etiologically with some form of tuberculosis, all efforts have failed and there remain but two interesting correlations. One is the often chronic inflammatory granulomatous appearance of the lesions of Hodgkin's disease, and the second is the consistently high percentage of negative tuberculin reactions in patients having Hodgkin's disease. Parker and Jackson[15] reported the greater frequency of healed and active tuberculosis in autopsies on patients with Hodgkin's disease (33 per cent) than in those having other lymphoma (5.3 per cent), cancer (14.6 per cent), or in general autopsies (19.3 per cent). Others also have noted this phenomenon. Baker,[7] however, felt that this increased incidence was questionable and in any case was overemphasized.

In the series of Hodgkin's disease, here reported, the incidence of healed and active tuberculosis was 17 per cent. In an equivalent general autopsy group the percentage of tuberculous lesions (healed and active) was 11 per cent, in the cancer group 4 per cent and in the lymphoma (excluding Hodgkin's disease) group 13 per cent. The tuberculin test was done in 34 cases, with negative reaction in 31 and positive in three. Nobécourt[13] noted this and suggested that this tuberculin anergy might be the explanation of the increased incidence of tuberculosis in Hodgkin's disease. A low incidence of positive reactions to tuberculin tests also may occur with other diseases of the reticuloendothelial system (such as leukemias and lymphosarcoma) which may be caused by that system being "blocked out," with resultant anergy (Parker, Jackson, Fitzhugh and Spies[14]).

Various serological procedures on patients with Hodgkin's disease were performed. The Kolmer test was positive in 5 per cent of 100 cases. In all of 15 cases in which tests were carried out, Brucella and tularemia agglutinations were negative. Typhoid

TABLE 2.—*Initial Signs and Symptoms as Noted by 135 Patients**

Malaise	17%	No symptoms	2%
Cough	10%	Leg swelling	2%
Night Sweats	7%	Leg pain	1%
Weight loss	7%	Paralysis	1%
Dyspnea	7%	Choking	1%
Fever	6%	"Flu"	1%
Neck, arm and/or shoulder pain	5%	Diarrhea	1%
Back pain	5%	Jaundice	1%
Abdominal pain	5%	Pigmentation	1%
Enlarged nodes	4%	Hoarseness	1%
Pruritus	4%	Dyspepsia	1%
Chest pain	4%	Abdominal mass	0.3%
Anorexia	3%	Hemorrhagic tendencies	0.3%
Rash	3%	Ascites	0.3%

*Patients each noted an average of three symptoms.

TABLE 3.—*Site of Primary Tumor, Correlated with Survival Time (132 Cases)*

Location	*Percentage*	*Average Survival*
Neck	78%	42 months
Left	43%	
Right	32%	
Unspecified	21%	
Midline	1%	
Axilla	9%	30 months
Inguen	6%	43 months
Chest and abdomen	7%	30 months

and paratyphoid agglutinations in this group revealed increased titres for each of them in two instances. The cell-free filtrates of some Hodgkin's disease lymph nodes were serially passed in embryonated chicken eggs. Not only was an increased mortality demonstrated in these eggs (Bostick[4]), but increased cutaneous sensitivity reaction to their amniotic fluid is now apparent and is being studied further. This is all supportive evidence for the presence of a possible virus agent.

The histories of 126 patients were checked for exposure to animals, the object being to detect any correlations that might indicate the possibility of direct infection from animals. Special attention was directed toward contact with chickens. Seventy-five per cent were city dwellers and essentially free from animal contact. Seven per cent lived in rural communities and had had some slight contact with domestic animals. Eighteen per cent lived on farms with direct care of and exposure to animals. Two patients worked on a poultry farm. The proportion of farm dwellers among patients with Hodgkin's disease is no higher than it is in the general clinic population, and the number massively exposed to fowl is too small to warrant comment.

HODGKIN'S DISEASE AND GONADAL ACTIVITY

Gemmell[9] reported the case of a patient with Hodgkin's disease who developed it during her second pregnancy and had exacerbations during each subsequent pregnancy (two of them) and remissions between pregnancies (with the aid of treatment). He reviewed 57 cases of Hodgkin's disease in females, and concluded that in 46 per cent the onset of the disease was during a period of physiological amenorrhea (puberty, pregnancy, menopause, lactation). He proposed that cyclic ovarian activity is antagonistic to Hodgkin's disease and suggested that, where feasible, pregnancy should be terminated in women having Hodgkin's disease. Levrat and Jarricot[12] noted increase in symptoms during pregnancy in two women with Hodgkin's disease.

In the 35 females with Hodgkin's disease studied in the series here reported, 19 were having normal menstrual cycles at the first hospital entry after the onset of the disease. Eleven were menopausal and five were amenorrheic, making a total of 16 (46 per cent) in a non-cyclic ovarian phase. No cases of Hodgkin's disease occurred before the age of puberty (aet. 15) in females. Thirteen was the average age at the onset of menses for all females that developed Hodgkin's disease. These women had an average of 2.4 pregnancies each, and in four women the Hodgkin's disease was present during pregnancy. No particular untoward effect of the pregnancies on the course of the disease was remarked, and all were delivered of normal term infants. In view of the clearly greater incidence of Hodgkin's disease in males, and the apparent increased frequency of amenorrhea in females with Hodgkin's disease, there is some indication that ovarian hormones may play a part in the equilibrium of the disease. This might warrant further investigation.

BLOOD PICTURE

Much has been written on the blood picture in Hodgkin's disease. Most observers feel that there is a suggestive blood picture, but that it is not always present, and it is certainly not pathognomonic (Bunting,[5] Falconer,[8] Wiseman[24]). The more common finding is moderate, relative or absolute polynucleosis with lymphopenia. Mononucleosis tends to occur, and although the eosinophil count is usually normal, it may sometimes be very high. With progression of the disease a moderate progressive secondary type of anemia is the rule.

In the hemogram studies in this series of Hodgkin's disease no effort was made to evaluate the blood changes associated with the progression of the disease. It was felt that an analysis of the average blood picture in patients before any treatment, and at least six months before death, would be most informative, especially in regard to a typical Hodgkin's disease blood picture (Table 4). It can be seen that a slight leukocytosis (12,750) is present and the polymorphonuclear neutrophil average is 70 per cent, which is perhaps slightly above normal. The average for the lymphocytes (18 per cent) is below normal and monocytes (7 per cent) are at the upper margins of the normal limits. The mean eosinophilic count was 4 per cent. This included one patient with 68 per cent eosinophilia in a total of 37,000 white blood cells. Not counting this patient, the mean eosinophil count was 2.5 per cent, which is still slightly above a strictly normal mean. The usual moderate anemia, with 12.2 grams hemoglobin and 4,400,000 red blood cells as mean values, was present.

TABLE 4.—*Blood Counts Before Treatment and at Least Six Months Before Death*

	Total Cases	*Mean*
Hgb.	40	12g ± 2.0
Erythrocytes	40	4,400,000 ± 650,000
Leukocytes	41	12,750 ± 9,600
Polymorphonuclear	42	70 ± 17.3
Lymphocytes	42	18 ± 6.2
Monocytes	42	7 ± 3.7
Eosinophils	42	4 ± 1.8
Basophils	41	0.4 ± 1.5

FEVER

The occurrence of cycles of fever in cases of advanced Hodgkin's disease was noted by Pel[16] and Ebstein[6] and the occurrence of fever in Hodgkin's disease has been frequently remarked since. Baker[1] states that fever is uncommon when only peripheral nodes are involved, and is common when deeper nodes are invaded. Goldman[10] remarks that a rather characteristic feature is a pulse rate which is proportionally at a considerably higher level than the temperature.

In the fever data available in this reported series, it was felt that the information of greatest interest would be provided by trying to relate fever pattern

with survival, and also to correlate it with the site of apparent origin of the Hodgkin's disease. For these purposes, the fever was separated into five types: (1) Pel-Ebstein, (2) remittent, (3) intermittent, (4) continuous, (5) none. For each patient, the highest fever recorded was also noted. These data are arranged in Table 5.

TABLE 5.—*Survival Time After Onset, Correlated with Degree and Type of Fever**

Survival Time in Months	*Degree of Fever*	*Type of Fever*
3	39.4° C	2, 1, 2-4, 3-5
6	37.0	1
9	38.8	1, 1, 1, 1, 2-3, 3, 3-5, 4
15	39.0	1, 1, 2, 5
20	38.8	1, 1, 1, 1, 1, 3, 3-5, 5
30	38.8	1, 1, 1, 5
40	37.8	2-3, 3-5, 3-4, 5
50	39.4	1, 1, 1
60	38.6	1, 2-3, 3
80-140	37.5	2-3, 3-5, 5, 5, 5, 5

*Type 1, Pel-Ebstein; Type 2, Remittent; Type 3, Intermittent; Type 4, Continuous; Type 5, None.

TABLE 6.—*Site of Primary Tumor, Correlated with Degree and Type of Fever**

Site	*Mean Maximum Fever*	*Type of Fever** *Type*	*Percentage*
All areas of neck and axillas	38.4° C	1	41
		3	18
		5	19
All abdominal sites	39.0	1	50
		3	17
		5	0
All inguinal sites	38.1	1	33
		3	17
		5	33

*See Table 5.

When the cases of Hodgkin's disease are grouped according to the number of months the patients survived, and the type of fever of each group is examined, differences are noted. Of those surviving up to 20 months, only 7 per cent (two cases in 28) were afebrile, whereas 50 per cent had Pel-Ebstein fever, and about 45 per cent had the other varieties of fever. However, in those surviving five years or more, 50 per cent were afebrile, and only 10 per cent had Pel-Ebstein fever. Calculation of the averages of the highest temperatures of each of these survival groups revealed little of significance, although it showed a tendency for those patients with the longest survival to have the lower average maximum temperature.

Correlating the fever type and average maximum temperatures with the apparent primary site of origin of the disease (Table 6) revealed certain tendencies. The average maximum temperature in cases in which the primary site was abdominal was 39.0°C., whereas if origin was in the neck and axilla the average was 38.4° C., and if inguinal 38.1° C. Also in no case in which the abdomen was the primary site was the patient afebrile, and yet 19 per cent of the patients with the neck and axilla as the primary site, and 33 per cent of those in which origin was in the inguen, ran an afebrile course.

SURVIVAL

Data on survival are calculated from the onset of signs and/or symptoms. Since the precise times of onset are based mostly upon the patient's histories, they are not absolutely accurate. The overall average number of months of survival by this method is 41. In Table 7 the survivals have been broken down to show the age and sex of the patients in relation to survival time. The females not only have the disease less frequently, but tend on the whole to outlive the males. This difference is most pronounced in the decades over 40, whereas in the earlier decades the survival is about the same. Epstein[7] found a greater survival of females over males in 384 cases from the literature. However, Slaughter and Craver[18] did not find this difference in their 265 cases.

The survival in relation to the apparent sites of primary tumors is shown in Table 8. The survival for those with the disease starting in the neck or axilla is 41 months, and in the inguinal nodes 42 months, whereas the average survival for five patients with the disease starting in the abdomen or chest is 30 months (although one is yet alive 12 years after onset). These figures represent only a possible trend of survival, since too few cases are available for statistical study.

TREATMENT

X-ray alone was used in the treatment of the great majority of cases. Table 8 indicates that 39 patients out of the 55 for whom the time of death

TABLE 7.—*Survival Time After Onset*

Age in Years	*Male* *No. of Cases*	*Male* *Sur. in Months*	*Female* *No. of Cases*	*Female* *Sur. in Months*
0-10	3	30	0	....
11-20	3	34	0	....
21-30	14	32	2	31
31-40	6	36	3	21
41-50	9	35	2	72
51-60	7	50	4	86
61-70	1	65	0	....

Average survival: male, 37 months; female, 56 months; combined, 41 months.

TABLE 8.—*Survival Time Correlated with Therapy*

No. of Cases	*Therapy*	*Survival time in months*
2	None	5
39	X-ray	41
2	X-ray plus Coley's toxin	40
1	X-ray plus radioactive phosphorus	75
4	X-ray plus surgical excision	71
1	X-ray plus Coley's toxin plus cacodylate	102
1	X-ray plus splenectomy	69
1	Gland resection alone	23
1	"Hodgkin's vaccine" only	13
1	Fowler's solution only	23
1	"Hodgkin's vaccine" plus x-ray	23

is known received x-ray alone and had a mean survival time of 41 months. The total number treated by other methods was too small to use as a basis of conclusions as to comparative value of methods of treatment. The short survival of the two patients who received no treatment reflects not so much the lack of treatment as the fact that the disease had so far progressed at the time of entry that therapeutic efforts were considered unwarranted. Surgical excisions in selected cases presenting localized surgically accessible tumor masses has been reported to result in some prolonged survivals, especially when followed by x-ray therapy (Slaughter and Craver[18]). Four patients in our series were treated in this manner. One survived 48 months, another 95 months, while another was alive until lost track of 11 years after the operation, and the fourth, who had a Hodgkin's sarcoma, lived only 11 months. In one case in which treatment was surgical excision alone the patient survived only 23 months.

The introduction of nitrogen mustard therapy is too recent to permit evaluation of therapeutic effects. Although apparently useful in selected cases, especially those in which the lesions are x-ray resistant, it produces severe toxic reactions. Its influence on actual survival time is not known, since it has been available for use for only about the same number of years that the average patient with Hodgkin's disease lives.

REFERENCES

1. Baker, Charles: Hodgkin's disease, a study of 65 cases, Guy's Hosp. Rep., 89:83, 1939.

2. Bersack, S. R.: Hodgkin's disease, a pathological classification, Am. J. Clin. Path., 13:253 (May), 1943.

3. Bostick, W. L.: To be published.

4. Bostick, W. L.: The serial passage of Hodgkin's disease tissue extracts in chicken eggs, J. Immunol. (to be published).

5. Bunting, C. H.: The blood picture in Hodgkin's disease, Bull. Johns Hopkins Hosp., 22:369 (Oct.), 1911; 25:173 (June), 1914.

6. Ebstein, W.: Das chronische Ruckfallsfieber, Berlin. Klin. Wchnschr., 24:565 (Aug.), 1887.

7. Epstein, E.: Sex as a factor in the prognosis of Hodgkin's disease, Am. J. Cancer, 35:230 (Feb.), 1939.

8. Falconer, E. H.: The blood picture in Hodgkin's disease, California & West. Med., 32:83 (Feb.), 1930.

9. Gemmell, A. A.: Menstruation and pregnancy in Hodgkin's disease, J. Obs. & Gynec. Brit. Emp., 30:373 (Autumn), 1923.

10. Goldman, L. B.: Hodgkin's disease, an analysis of 212 cases, J.A.M.A., 114:1611 (Apr. 27), 1940.

11. Jackson, H., Jr., and Parker, F., Jr.: Hodgkin's disease: I. General Classification, New England J. Med., 230:1 (Jan.), 1944.

12. Levrat, J. P., and Jarricot, H.: Case of malignant granuloma in the form of subacute septicemia, Am. J. Cancer, 19:786 (Nov.), 1933.

13. Nobecourt, P., Martin, R., Foulon, P., Liege, R., and Stavropoulos, J.: Consideration clinique, anatomique et experimentales sur trois cas de lymphogranulomatose chez l'enfant, Ann. de Med., 28:563 (Dec.), 1930.

14. Parker, F., Jr., Jackson, H., Jr., FitzHugh, G., and Spies, T. D.: Studies of diseases of the lymphoid and myeloid tissues: IV. Skin reactions to human and avian tuberculin, J. Immunol., 22:277 (April), 1932.

15. Parker, F., Jr., and Jackson, H., Jr.: Studies of diseases of the lymphoid and myeloid tissues: V. The coexistence of tuberculosis with Hodgkin's disease and other forms of malignant lymphoma, Am. J. M. Sc., 184:694, (Nov.), 1932.

16. Pel, P. K.: Pseudoleukemie oder chronisches Ruckfallsfieber? Berlin. Klin. Wchnschr., 24:644 (Aug.), 1887.

17. Priesel, A., and Winkelbauer, A.: Placentare Uebertragung des Lymphogranuloms, Virchow's Arch. f. path. Anat., 262:749 (Dec.), 1926.

18. Slaughter, D. P., and Craver, L. F.: Hodgkin's disease—5-year survival rate; value of early surgical treatment; notes on 4 cases of long duration, Am. J. Roentgenol., 47:596 (April), 1942.

19. Smith, C. A.: Hodgkin's disease in childhood, J. Pediat., 4:12 (Jan.), 1934.

20. Symmers, Douglas: The clinical significance of the pathological changes in Hodgkin's disease, Am. J. J. M. Sc., 167:157, 313 (Feb. & March), 1924.

21. Telford, P. K., and Gartin-White, Ruth: Spread of tuberculosis in families of tuberculous patients, Am. Rev. Tuberc., 53:215 (Mar.), 1946.

22. Wallhauser, A.: Hodgkin's disease, Arch. Path., 16:522, 672 (Oct.), 1933.

23. Warthin, A. S.: The genetic neoplastic relationships of Hodgkin's disease, aleukaemia and leukaemic lymphoblastoma, and mycosis fungoides, Ann. Surg., 93:153 (Jan.), 1931.

24. Wiseman, B. K.: The blood pictures in the primary diseases of the lymphatic system, J.A.M.A., 107:2016 (Dec. 19), 1936.

Palliative Treatment of Prostatism

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SUMMARY

A study of 310 patients with prostatism who were not operated upon within a month following the first examination, was made in an effort to determine indications for operation in the patient with mild symptoms of prostatism. This study showed that long duration of symptoms, residual urine of more than 60 cc. and enlargement of the gland beyond Grade I are criteria for the necessity of operation. Palliative treatment is not always indicated. Patients with a soft, boggy prostate and those with more than a slight amount of infection in the prostate are benefited by light prostatic massage once weekly and stilbestrol given in doses of 1 mg. twice daily. Severe infection is treated by chemotherapy and bladder irrigations.

WHEN a patient has mild symptoms of prostatism it is sometimes difficult for the physician to know whether to advise surgical removal of the gland or to recommend palliative treatment. In most patients who have comparatively severe symptoms of difficulty in voiding, frequency and nocturia, prostatic operation is clearly indicated. It is, however, not always so clear whether or not the patient with milder symptoms should be operated upon.

In an effort to determine the result of palliation in patients with prostatism, a statistical study has been made of the case histories from our office files of patients who had symptoms of prostatism and a diagnosis of prostatic hypertrophy, median bar or bladder neck contracture. These cases were selected with a view to obtaining as much information as possible regarding the outcome when treatment was palliative or no treatment was given. In order to eliminate all factors other than bladder neck obstruction due to benign prostatic disease, the following cases were eliminated: All of those in which there was more than a slight amount of prostatitis; those in which there was urethral stricture; those in which the patient had carcinoma of the prostate; and also cases in which the patient had predominating symptoms other than those referrable to bladder neck obstruction. No cases in which the patient was operated upon in less than one month following the first examination were included, and all patients were followed for six months or more. Table 1 shows the length of time during which the patients were observed from the onset of symptoms to the last follow-up report.

By studying these case histories, an attempt was made to determine whether or not the data obtained at the first examination could be used in the prognosis. Could the physician determine by the amount of the residual urine, by the size of the gland, by the duration of symptoms, or by other criteria whether operation was indicated?

In this group of cases, 129 patients or 41 per cent were operated upon after palliative treatment for more than one month or after more than a month in which there had been no treatment. Table 2 shows the reasons why operation was not done within a month after the first examination. It also shows, for each group, the percentage of cases in which operation was done later. The first group consisted of patients who were advised at the time of the first examination that operation was not necessary. Only four per cent of this group were operated upon later. Of those who were in too poor physical condition for operation at the time of examination, 73 per cent later became good enough surgical risks to have the operation performed. There were 131 who were on the borderline as to indications for operation. They were advised to try palliative treatment with the understanding that if it was not successful, operation would be necessary. Of these, 40 per cent had operations later. There were 83 patients who did not wish to have surgical treatment, although it was advised. In this group 77 per cent were operated upon later.

CRITERIA FOR ADVISING METHOD OF TREATMENT

The patient's age was not a criterion as to the necessity for eventual operation nor an indication of

TABLE 1.—*Total Time Patients Were Followed from Onset of Symptoms to Last Follow-up Report*

Time	*No. in Each Group*
2 years or less	61
2-4 years	88
4-6 years	80
Over 6 years	81

TABLE 2.—*Reasons Operation Was Not Done Within One Month of Time of First Examination and Per Cent of Each Group Having Surgery Later*

Reasons for Not Operating		*Subsequent Operation*
Not necessary	85	4%
Too poor surgical risk	11	73%
Try palliative	131	40%
Patient did not wish	83	77%

Presented before the Section on Urology at the 77th Annual Meeting of the California Medical Association, San Francisco, April 11-14, 1948.

*From the Department of Surgery (Urology), College of Medical Evangelists School of Medicine.

TABLE 3.—*Age Groups of Patients in This Study*

Age Groups	No. of Cases	Results Obtained—Per Cent of Each Group				
		Good	Fair	Poor	Operation	No Operation
Under 50 years	13	15%	54%	31%	38%	62%
50-59 years	86	26%	46%	28%	38%	62%
60-69 years	122	19%	48%	33%	48%	52%
70 years and older	89	22%	45%	33%	39%	61%

TABLE 4.—*A Comparison of Amount of Residual Urine with Results of Treatment and Eventual Operation*

Residual Urine	No. of Cases	Results Obtained—Per Cent of Each Group				
		Good	Fair	Poor	Operation	No Operation
Less than 60 cc	192	28%	54%	18%	33%	67%
60 cc. or more	118	11%	34%	55%	62%	38%

the result which would be obtained by non-surgical treatment (Table 3).

Residual urine. Table 4 shows that 62 per cent of patients with more than 60 cc. residual urine obtained at the time of the first examination, required prostatic operation later, whereas the operation was done in only 33 per cent of the group who had less than 60 cc. of residual urine.

Size of the prostate. (Table 5). Patients who had hypertrophy larger than Grade I were more likely to require operation than those with hypertrophy of Grade I or less, including among the latter those with median bars and bladder neck contractures.

Duration of symptoms. This study showed that the longer the patient had had symptoms prior to the first examination, the more likely the need for operation eventually. (Table 6).

The results of palliative treatment or of giving no treatment were somewhat difficult to evaluate. Generally, the patients in whom results without operation were poor were those who required operation eventually. This is shown in all the tables by the statistical correlation between the results of treatment and the percentage of cases in which operation was done later. The patients who had no treatment and those who had palliative treatment of some form are grouped together, for the treatment given the latter group was not very specific and was sporadic. It was difficult to evaluate the difference between the two groups. There are certain instructions, however, that should be given to each patient who has symptoms caused by bladder neck obstruction, and for whom operation is not immediately indicated. He should be told to avoid holding the urine after he has the desire to void, for when voluntary retention occurs edema of the mucosa of the bladder neck and prostatic urethra results and there is danger of acute obstructive symptoms developing. The patient should also avoid sexual excesses, becoming chilled, and drinking an excessive amount of liquor, for these may also produce edema with resulting acute obstructive symptoms. Palliative treatment of hot sitz baths each evening will frequently help to prevent onset of acute symptoms in these patients. If the prostate is congested, as indicated by a soft and boggy consistency when palpated through the rectum, light prostatic massage may help to reduce the congestion and give relief of symptoms. This treatment is also indicated in the patient who has more than ten to twelve pus cells per high dry field in the prostatic fluid.

Figure 1.—Massage of prostate. Arrows indicate direction and extent of massage.

It is important that prostatic massage be performed properly (Figure 1). The finger is placed as high as possible in the rectum, reaching to the upper edge of the prostate, or beyond to the lower end of the seminal vesicle if possible. With a slow gentle stroke downward and medialward, the edge of the prostate is massaged down to the midline. The finger is again placed as high as possible and the next stroke is slowly made down to the midline, terminating a little above the end of the first stroke. The third stroke is started a little medial to the second and brought down to the midline again. The same procedure is repeated on the opposite side. In patients who have had very little previous treatment, the prostate should be covered in this manner only once or twice, and for those who have had numerous previous massages it should be done three or four times. After the strokes from lateral to medial and downward have been completed on each side, one or two gentle strokes downward over the median groove are made in order to empty the prostatic fluid from the urethra. It is important that the strokes be made very slowly, for if they are rapid, not enough time is given

TABLE 5.—*A Comparison of the Size of the Gland with Results of Treatment and Eventual Operation*

Size of Gland	*No. of Cases*	*Results Obtained—Per Cent of Each Group*				
		Good	*Fair*	*Poor*	*Operation*	*No Operation*
Grade I or less	136	32%	48%	20%	32%	68%
Over Grade I	174	12%	48%	40%	49%	51%

TABLE 6.—*A Comparison of the Duration of Symptoms to First Examination with Results of Treatment*

Duration of Symptoms	*No. of Cases*	*Results Obtained—Per Cent of Each Group*				
		Good	*Fair*	*Poor*	*Operation*	*No Operation*
Less than 3 months	26	46%	35%	19%	24%	76%
3 months to 1 year	52	23%	48%	29%	29%	71%
1-3 years (incl.)	119	24%	52%	24%	32%	68%
More than 3 years	113	13%	44%	43%	61%	39%

for the prostatic fluid to exude through the small prostatic duct orifices.

Although stilbestrol in the treatment of benign prostatic hypertrophy is almost valueless, there are certain conditions in which it is beneficial. If the prostate is soft and boggy, indicating congestion, stilbestrol in doses of 1 mg. twice a day will frequently aid in reducing the congestion. It is also of value to reduce libido in patients who have a tendency toward sexual excesses.

If there is infection of the urine accompanying prostatism, chemotherapy is indicated. As a general rule sulfathiazole, sulfadiazine, or penicillin are preferable for the treatment of gram-positive coccal infection and sulamyd (sulfacetamide) or streptomycin are more effective in combating the gram-negative bacilli group.

Catheterization and bladder irrigations are not indicated in the patient who has only a small amount of residual urine and in whom there is minimal infection. Patients who are too poor a risk for operation and who have a large amount of residual urine and considerable infection in the bladder are frequently helped by catheterization or in-dwelling urethral catheter and bladder irrigations.

1216 Wilshire Boulevard.

Unilateral Paralysis of Eye Muscles Associated with Intracranial Saccular Aneurysms

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SUMMARY

Unexplained unilateral paralysis of eye muscles with or without evidence of altered function of other cranial nerves, or of the presence of intracranial bruit, is strong positive diagnostic evidence of saccular aneurysm of the intracranial internal carotid or of the circle of Willis. If pulsating exophthalmos is present the lesion probably is an arteriovenous fistula.

The presence of such clinical signs strongly indicates the desirability of cerebral angiography. Once demonstrated, the lesion can usually be treated successfully by ligation of the contributing vascular connections.

SUDDEN one-sided paralysis or weakness of any movement of the eyeball should suggest the possible presence of an intracranial saccular aneurysm of the internal carotid artery or one of its major branches. The usual complaint will be of a drooping eyelid or of double vision. Additional symptoms may indicate involvement of other cranial nerves as well. There may be loss of vision in one eye or in both, suggesting pressure on the optic tract or the chiasm. Pain or hypesthesia in the distribution of the trigeminal nerve may be present if this region has been affected; the corneal reflex may be diminished or absent. Should the aneurysm have ruptured, the usual signs of subarachnoid hemorrhage may be found. Occasionally a bruit can be heard, but its absence does not point away from aneurysm as a causative lesion in this syndrome of the region of the cavernous sinus. In our experience the presence of a bruit is unusual.

If there is an associated unilateral exophthalmos, particularly of the pulsating type, an arteriovenous aneurysm between the internal carotid and the cavernous sinus should be suspected. In such circumstances a bruit is usually to be heard.

An untreated aneurysm is liable to rupture, as was demonstrated by McDonald and Korb (1939)[4] who reported such an occurrence in 786 of the 1,125 instances of intracranial aneurysm they found in the literature. The leaking or rupturing of an aneurysm is not necessarily fatal, although the prognosis increases in gravity with each successive bout of intracranial bleeding. Few persons survive the third hemorrhage from such a process. The mortality rate in untreated intracranial aneurysm must be considered to be high.

The possible fate of the patient with undiagnosed and untreated aneurysm of the carotid or of the circle of Willis is illustrated by the history of a woman in her early forties who was said to have been in good health until the onset of the terminal illness, which commenced one evening with the sudden appearance of diplopia. This progressed in a few minutes to complete paralysis of the third nerve, and there was transitory headache on the same side. She was hospitalized for two weeks, during which time the oculomotor palsy showed no improvement, although the headache subsided completely in the first few days. On the night after discharge she was awakened by severe, intolerable generalized head pain. This quieted somewhat, but recurred in about 13 hours, being immediately followed by loss of consciousness, respiratory failure and death.

This patient had a saccular aneurysm of the left carotid artery. The initial symptom was a third cranial nerve paralysis, which even preceded the symptom of subarachnoid hemorrhage. By current methods of study, the outlook in her case should have been better. A presumptive diagnosis of saccular aneurysm would have been made and angiographic studies instituted, followed by definitive therapy directed toward the presumably demonstrable lesion.

In recent years the authors have seen nine patients with saccular aneurysm of the carotid artery or circle of Willis. Angiograms confirmed the diagnosis in each case. In three patients the initial symptom was paralysis of extraocular movement. Involvement of other adjacent cranial nerves, principally the trigeminal, or symptoms resulting from frank subarachnoid bleeding were seen as initial signs in the other six patients.

Two patients were males and seven females. The age at the time of onset ranged from 3 to 53 years. All aneurysms were treated by ligation of the carotid artery in the neck, and in two patients the aneurysm was trapped by clipping the vessel intracranially. The youngest patient, who was 10 at the time of operation, developed hemiparesis 54 hours after carotid ligation. No other undesirable sequelae have been encountered.

Read before the Section on Neuropsychiatry at the 76th Annual Session of the California Medical Association, Los Angeles, April 30-May 3, 1947.

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In all instances oculomotor paralysis was a prominent feature in the clinical diagnosis. To emphasize the importance of this sign, brief histories are given of the three patients in whom it appeared as the initial symptom.

CASE 1. A 53-year-old woman noticed some diplopia, particularly when she was reading, doing a considerable amount of work with her eyes, or when she was tired. This had become progressively worse over a period of eight months. At the same time she noticed a progressive droop of the left eyelid and a tendency for the eye to turn outward.

Approximately six months before entering the hospital she had periodic headaches on the left side of the head, localized behind the left eye. Sometimes the pain was sharp and throbbing; sometimes it was only a dull, retro-orbital and temporal ache. The headaches were not continuous, but occurred almost every day and would last for several hours. The patient was treated for migraine. Frank double vision was recognized by the patient at about the same time that the headaches appeared. This situation continued up to the time of her admission for study. On examination, the striking observations were the ptosis of the left eyelid, the weakness of all movements related to oculomotor nerve function, and a generalized hypalgesia of all divisions of the fifth cranial nerve, but particularly of the ophthalmic branch. A diagnosis of aneurysm of the carotid artery or the circle of Willis on the left side was made and angiographic studies were carried out.

The resulting film showed a saccular aneurysm arising from the cavernous portion of the carotid artery in a position where it could be expected to cause pressure upon the third and fifth cranial nerves. Tying of the internal and external carotids in the cervical region did not relieve the patient's oculomotor palsy which progressed to a complete lesion; therefore a trapping of the aneurysm by intracranial approach was deemed necessary.

At operation there was found to be pressure on the third cranial nerve before it entered the wall of the cavernous sinus and the anterior clinoid. The artery and the optic nerve were displaced mesially. Tantalum clips were placed just proximal to the middle and anterior cerebral arteries. Postoperatively the patient's course was satisfactory. There was no loss of vision in the left eye.

CASE 2. A 43-year-old woman had diplopia of sudden onset without apparent cause two years before examination. She observed that this was worse on gaze to the left. Eleven months later she noted drooping of the right upper eyelid. Two months before admission maxillary pain on the right appeared and progressed in the following weeks to an excruciating degree.

On examination paralysis of all extraocular movement was found. There was anesthesia of the upper portion of the face on the right side and hypesthesia of the lower portion. The muscles of mastication were paralyzed on the right.

Plain roentgen films showed erosion of the base of the skull, and carotid angiography demonstrated a saccular aneurysm just proximal to the cavernous sinus to be the cause of the difficulty. Ligation of the internal carotid was carried out with satisfactory results.

CASE 3. A woman 54 years of age suddenly developed double vision 16 months before hospitalization. This persisted and an unsuccessful attempt was made to correct it with glasses. One month before admission she noted progressively increasing pain in the region behind the right eyeball. Angiography demonstrated abnormal narrowing and displacement of the carotid. Craniotomy was performed and an aneurysm at the site of vascular distortion was trapped between ligation in the neck and clips distal to the defect intracranially.

DISCUSSION

In recent years the problem of saccular aneurysm of intracranial vessels has increasingly commanded the attention of neurologists throughout the world. Although the problem has been the subject of discussion in the literature for over 150 years, aneurysms were still a clinical rarity at the close of the first World War. Only in the past 20 years, since the pioneer work on cerebral angiography by Egaz Moniz, has any consistency in diagnosis and treatment been developed. Today a high percentage of these potentially fatal lesions, particularly those in the anterior part of the circle of Willis and its immediate branches, can be alleviated if recognized clinically, confirmed by angiography and treated early. The importance of unilateral extraocular muscle paralysis as a localizing sign for aneurysms in this region has been stressed by others. Its importance as a diagnostic sign would seem to justify further emphasis.

A discussion of the anatomical basis for the involvement of the oculomotor, trochlear and abducens nerves by aneurysmal lesions in adjacent vessels may serve to emphasize the importance of eye signs.

The internal carotid artery enters the skull by way of the carotid canal in the petrous portion of the temporal bone where it becomes surrounded by a projection of dura mater. Passing beneath the trigeminal nerve in Meckel's cave, it curves cephalad and forward lying within the cavernous sinus and close to the lateral aspect of the body of the sphenoid. As it swings upward toward the mesial aspect of the anterior clinoid, it penetrates the dura, giving off in this region its first large branch, the ophthalmic. Through the ophthalmic the internal carotid has extensive anastomotic connections with the external carotid of the same and opposite sides (Walsh and co-workers).[5] Continuing between the optic and oculomotor nerves, the carotid divides into the anterior and middle cerebral vessels above and lateral to the optic chiasm. Just before this bifurcation, it receives the posterior communicating artery which runs above and roughly parallel with the oculomotor nerve to connect with the posterior cerebral artery. The circle of Willis is completed anteriorly by the anterior communicating artery which connects the two anterior cerebral vessels.

While the ophthalmic is the first major branch of the carotid after its bifurcation in the neck, it should be remembered that six vessels or sets of vessels are described as arising from the petrous or cavernous carotid before it reaches the ophthalmic. These are the caroticotympanic, the vidian, the cavernous, the hypophyseal, the semilunar, and the anterior meningeal branches. In order to understand the pathogenesis of aneurysms in this portion of the carotid artery, it is important to remember these smaller branches.

The oculomotor nerve, as it passes forward from its origin in the brain stem toward the dura of the cavernous sinus, parallels the posterior communicating artery on its medial side (Whitnall).[6] Although it reaches the dura at the posterior clinoid, it has been shown by Laphart (1925) (see Whitnall, pp. 323 and 322)[6] that the nerve is excluded from the sinus proper until after it has dipped beneath the anterior clinoid process. In the cavernous sinus wall the nerve lies above and somewhat lateral to the carotid. It passes forward below the ophthalmic nerve and below and medial to the trochlear to enter the orbit through the superior orbital fissure (Whitnall). Within the cavernous sinus the oculomotor receives sympathetic fibers from the carotid plexus as well as sensory fibers from the first division of the trigeminal (Whitnall, p. 334).[6]

The trochlear nerve lies just lateral and inferior to the oculomotor in the cavernous sinus wall. It is somewhat more laterally placed with reference to the carotid but could be involved, alone or in conjunction with other nerves, by a suitably located aneurysm. In the anterior part of the sinus it crosses and is connected with the third nerve as it rises to a point above it and parallel with the ophthalmic at this level. It, too, receives communications from the cavernous plexus and from the ophthalmic division of the trigeminal. The sixth cranial nerve, as it passes through the cavernous wall, lies inferior to the artery and to the above described nerve complex.

It is seen, therefore, that aneurysms of the intracranial and cavernous portions of the carotid artery, as well as of the posterior communicating, the proximal portion of the middle cerebral, and the proximal portion of the anterior cerebral, may well be in a position to affect the nerves of ocular motion, particularly the oculomotor. The vessels named are frequent sites of saccular aneurysms.

Congenital saccular aneurysms arise from weak areas in the walls of intracranial arteries where there has been incomplete involution of the embryonal vessels (Dandy),[1] or from defects at the point of bifurcation of larger intracranial vessels (Forbus).[3] Although miliary aneurysms due to atheromatous changes in the walls of smaller blood vessels in older people are said to occur somewhat more frequently (Walsh and co-workers),[5] it is the congenital aneurysm which is of greatest clinical interest from both the diagnostic and therapeutic standpoints.

Saccular aneurysm of the intracranial vessels is a fairly common malady. Dott,[2] in a review of the literature in 1933, estimated that the lesion was found in approximately one in 700 consecutive postmortem examinations. Many of these, however, had neither produced symptoms nor contributed to the cause of death. Intracranial aneurysms arise most frequently from the carotid artery or its principal connections. McDonald and Korb[4] described 774 of 1,023 aneurysms as originating on these vessels; 480 were on the carotid or the anterior circle of Willis. Fortunately, it is in these locations that they are most easily diagnosed by clinical signs, including the ones under discussion, as well as by angiography. They are the ones which offer the best opportunity for successful treatment.

Arteriovenous fistula usually is a more dramatic disease since in the acute stage there is added to the signs of cranial nerve involvement a pulsating protrusion of the eye which becomes, therefore, the prominent sign of this potentially serious lesion. Chronic fistulae, however, may simulate many of the signs and symptoms of saccular aneurysm and therefore should be mentioned.

REFERENCES

1. Dandy, Walter E.: Intracranial arterial aneurysms, Comstock Publishing Company, Ithaca, New York, 1944.

2. Dott, N. M.: Intracranial aneurysms; cerebral arteriography: surgical treatment, Tr. Med.-Chir. Soc. Edinburgh, 219-234, 1932-1933; in Edinburgh M. J. (Dec.), 1933.

3. Forbus, W. D.: On the origin of miliary aneurysms of the superficial cerebral arteries, Bull. Johns Hopkins Hosp., 47:239-284 (Nov.), 1930.

4. McDonald, Charles A., and Korb, M.: Intracranial aneurysms, Arch. Neurol. & Psychiat., 42:298-328 (Aug.), 1939.

5. Walsh, Frank B., and King, Arthur B.: Ocular signs of intracranial saccular aneurysms, Arch. Ophth., 27:1-33 (Jan.), 1942.

6. Whitnall, S. E.: Anatomy of the human orbit and accessory organs of vision, Humphrey Milford, Oxford University Press, London, New York, 1932.

Adoption Procedures in California

What Physicians Should Know About Them

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SUMMARY

With demand for adoptable babies offered through agencies far exceeding the supply, independent and "black market" adoptions have increased.

Although adoptions through agencies are looked upon as better ultimately for both the child and the foster parents, the process is a slow one and the period of waiting for a suitable child often discouragingly long. In this regard an increase in the number of agencies would be helpful, but little use has been made of legislation permitting the organization of such agencies in California counties. There are many ways by which physicians may promote adoptions through existing agencies and the setting up of additional organizations for the purpose.

PROCEDURES for adoption of children in California have been criticized by the public and the medical profession, and critical articles have been published in magazines and newspapers. Complaints are based mainly on the prolonged waiting period between the time a couple applies to adopt a baby and the actual adoption. With the demand for adoptable babies much greater than the supply, the number of independent adoptions and "black market" adoptions has increased apace. In the interest of clarification, the Alameda County Medical Association appointed a committee to review the existing situation and to make recommendations. In the course of its work the committee has reviewed the report of the California Adoption Survey Committee (published in November, 1946), which is the principal source of information upon which this presentation is based.

The State of California recognizes four types of adoptions: (1) independent adoptions; (2) agency adoptions; (3) step-parent adoptions; (4) adoptions of illegitimate child by natural father. The latter two are not a concern of the medical profession, although step-parent adoption comprises almost half of all adoptions.

In independent adoptions a petition is filed with the superior court of jurisdiction by the prospective adopting parents with whom the child has been placed directly by the natural parent or parents. The State Department of Social Welfare or county adoption agency is responsible for obtaining necessary consents and investigating and reporting to the court on adoptions of this type. One hundred and eighty days are allowed for investigation to determine whether the child is adoptable and whether the home in which it has been placed is suitable. If the determination cannot be made within that time, however, the court may grant an extension.

In agency adoptions the parent or parents relinquish the child to a licensed adoption agency which selects from the applicants who have been studied and approved by it, the adoptive parents it considers best able to meet the needs of the particular child. After the child is placed in the adoptive home it remains under the supervision of the agency for one year before the agency will give its final approval to the adoption. Then jointly with the adopting parents it petitions the court to grant the adoption.

There is no doubt that adoption agencies make generally better placements from the point of view of the baby, the natural parents and the adoptive parents than is accomplished by independent adoptions.

The legal and practical implications of *relinquishment* (to an agency) as compared to *consent* (in independent adoptions) are numerous.

1. In agency adoptions by *relinquishment*, the legal custody of the child rests with the agency until adoption is completed. In independent adoptions the signing of *consent* by the natural parents does not terminate their right to, or responsibility for, the child, nor does this act without further proceedings transfer custody of the child to the adopting parents. Therefore, should the natural parents have a change of heart before the petition for adoption has been filed in the superior court in the county in which the petitioner resides, they may take the child back.

2. In agency adoptions by *relinquishment*, the identity of the child is lost to the natural parents, while in *consent* adoptions the natural parents are aware of the identity of the adopting parents. In the latter case, should the natural parents have a desire to see or contact the child, a great deal of embarrassment could be caused. Frequently this has happened.

3. In agency adoptions, a thorough investigation of *both* the natural parents, the child, and the adoptive home is made before any baby is placed. As far as the natural parents are concerned, this means the *relinquishment* has been signed, an investigation has been made to determine whether either parent has physical or mental defects, and a social history of the parents has been completed, including such things as racial background, religion, and social background. With this knowledge, the child can be matched appropriately with adopting parents. The child also is observed for physical or mental defects

which might make it unsatisfactory to its future parents. By these means, unfortunate adoption of a baby of one racial background by parents of another, or the placing of a baby of low mentality with parents of high intelligence, can be avoided.

Of almost as much importance is the investigation of the adopting parents to determine their social stability, their relative financial security, their racial and religious background.

In independent adoptions the investigation by the State Department of Social Welfare or the county adoption agency is made *after* the placement has been made. The Department has no authority in such cases until the petition for adoption has been filed, which may occur weeks, months, or even years after the placement. The natural parents often make no investigation of the home of the persons to whom the child is released, and frequently the persons accepting the child know little or nothing of the child's background or potentialities.

If it is agreed that agency adoptions are preferable to the independent adoption method, facilities for adoption through agencies should be increased. For the 18 months ended June 30, 1947, there were 494 petitions for independent adoptions filed in Alameda County, 53 per cent for adoption of illegitimate children. In this same period there were only 144 relinquishments to adoption agencies.

There are two volunteer agencies in this state which are licensed by the California Department of Social Welfare to handle adoptions—the Children's Home Society and the Native Sons and Daughters Central Committee on Homeless Children. Both are private agencies whose financial support comes from voluntary contributions. They have done and are doing a very efficient job but their finances and personnel are so limited that it has been impossible for them to increase their case load. It is difficult for them to maintain even their pre-war quantity.

As a result of the recommendations of the California Adoption Survey Committee and various other interested individuals and agencies, the 1947 Legislature amended the adoption laws to provide for the licensing of county adoption agencies, the agency to be designated by the county board of supervisors. In order to be licensed the agency must meet the standards for child placing agencies adopted by the State Social Welfare Board, the same standards being applicable to private and public adoption agencies. The administrative costs of the program will be paid from state funds and a portion of the cost for the care of the child prior to placement for adoption may also be paid from state funds. The agency may charge the adopting parents for the costs of care of the child up to $200 and will be reimbursed by the state up to $200 on any additional costs.

San Diego County Department of Public Welfare is the only county agency which has been licensed so far. No other has filed an application, although a number have shown interest and are considering it.

Certain safeguards are provided to protect the child who is given up by his parents. The law provides that it is a misdemeanor for any person (other than the parent) or organization or agency to place a child under 16 years of age either for temporary care or for adoption without having a written license or permit to do so. A regulation of the State Department of Public Health provides that any hospital or maternity home dismissing an infant from the hospital to a person other than the parent or relative must report the fact to the State Department of Social Welfare within 24 hours.

There are certain other facts in regard to adoptions that it would be well to know. The petition for adoption must be filed in the superior court of the county in which the persons adopting the child reside. The law was amended by the 1947 Legislature to provide that the hearing shall be in private with all persons excluded except the officers of the court, the child, the adopting parents, their counsel, and the representatives of the agency present to perform their official duties. The records of the adoption in the office of the county clerk are regarded as confidential and are not open to inspection by any persons other than the parties to the action and the State Department of Social Welfare, except on the written authority of the court. After adoption, the child has all the legal rights of the natural child, and may have a new birth certificate issued in his new name as though he were the natural child of the adopting parents, and this certificate is the only one open to public inspection.

Now that increased facilities can be established making it possible to speed up the process of adoption, those wishing to promote adoptions through agencies may do so by:

1. Supporting and urging an increase in facilities and personnel of existing volunteer agencies.

2. Encouraging prompt action by county welfare departments to set up the necessary machinery whereby adoption may be more readily accomplished. This should include well trained personnel and adequate rules so that the best end results may be obtained.

3. Referring any patient who contemplates having her child adopted to some agency which can advise her of available facilities.

The present volunteer agencies may be contacted through their district offices:

Children's Home Society of California
3100 W. Adams Street, Los Angeles 16, California (State Headquarters)
995 Market Street, San Francisco 3
645 A Street, San Diego 1, California.

Native Sons and Daughters Central Committee on Homeless Children
1095 Market Street, San Francisco 3
3924 Sunset Boulevard, Los Angeles, California.
360 Twenty-Ninth Street.

The Significance of Some Mental Disturbances During Convalescence from Surgical Operations

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SUMMARY

Early recognition and treatment of mental disturbances following operation may reduce the gravity of the complication and improve the prognosis. To aid in recognition, postoperative mental disturbances may be classified in accordance with the relative importance of organic as contrasted with psychogenic factors in development of them. Treatment of disturbances falling within any of the three classifications should be begun even before the exact classification is definitely established. It consists initially of promoting adequate nutrition, sedation with paraldehyde if necessary, constant special nursing care if possible, and frequent reassurance of the patient by the physician.

MENTAL disturbances during the postoperative period add to the morbidity of the operation and at times constitute a grave complication. Prompt recognition and early treatment of them can materially reduce this morbidity. A study of these postoperative mental disturbances suggests that they may be classified on the basis of the relative importance of organic as contrasted with psychogenic factors in the evolution of the reaction.

1. Toxic delirious reactions in individuals without evidence of previously existing damage to the central nervous system.

2. Toxic delirious reactions engrafted on already existing damage to the central nervous system.

3. Functional psychotic reactions precipitated by the stress of surgical operation.

The toxic delirious reactions usually appear after a latent period of from two to twenty days during which convalescence from the operation appears to be progressing satisfactorily. Such reactions may begin suddenly and dramatically or may begin insidiously with intervals of confusion and delirium first appearing at night, then gradually extending throughout the 24 hours. The symptoms may disappear after a few days or may endure for as long as several weeks. These reactions are characterized primarily by a disturbance in the level of consciousness, to which may be added disturbances of motility and of mood and a disordered thought content.

Presented before the Section on Neuropsychiatry at the 77th Annual Session of the California Medical Association, San Francisco, April 11-14, 1948.

The disturbance in level of consciousness may be characterized by a superficial alertness, the morbid nature of which is betrayed by the patient's distractibility and brief span of attention. More common, however, are various degrees of somnolence or stupor. Oftentimes the disturbance of motility is mild and is characterized only by disorganized unproductive activity such as restless movements of the extremities or picking at the bedclothes. At times, however, the activity of these patients may be so vigorous as to endanger their own welfare.

The disorder of mood is usually characterized by anxiety and depression of variable degree. The patient may have some awareness of the altered state of his mentation and experience distress over this change. The thought content is often characterized by hallucinations, those in the visual sphere occurring more commonly than those in the auditory sphere. Delusions are common but are apt to be changeable and unsystematized. During the early stages of the onset of such a reaction, the patient may be considered merely petulant or stupid. As the reaction develops the character of his thinking regresses to a childish and concrete level.

In reviewing the history of the patient's previous life, it is common to find that he has never before suffered any psychotic reaction. At times, however, it is learned that under similar circumstances, following an operation or in the presence of a severe infection, the patient has had a similar reaction. Age does not appear to play any significant part in the occurrence of reactions of this type. It may be presumed that the chief precipitating factors are the absorption of disintegrating tissue products and the nutritional deficiencies induced by the surgical operation and attendant procedures.[5]

The treatment of these conditions is similar to the treatment of any toxic delirious state.[2] It is important to promote adequate nutrition even by means of nasal tube feedings if necessary. It is unwise to rely entirely on the administration of intravenous fluids to accomplish this end. In the ordinary general hospital where the noisiness of these patients may produce a serious disturbance, it is usual for sedatives to be used in large amounts in an attempt to control the symptoms. Quite frequently the injudicious use of sedatives merely aggravates the delirious state. The use of barbiturates and bromides should be avoided. Paraldehyde is the sedative of choice[2, 9] and should be used in sufficiently large dosage to insure rest or sleep. As a rule 15 to 20 cc. may be given as an initial dose and the drug may be repeated in doses of 8 to 10 cc.

every two hours until the desired effect has been produced. If the drug is given by mouth, it is well to disguise the unpleasant taste as much as possible by giving it in iced lemon or grapefruit juice. The drug may also be conveniently administered by rectum or may be given intravenously with safety. When given by this latter route it may cause fits of coughing during the time it is being injected.

Violent motor activity on the part of the patient may necessitate mechanical restraint, but this should be used as sparingly as possible. As a rule side rails on the bed are not only an inconvenience to the attendant, but are actually an added hazard to the patient. These delirious reactions constitute a potentially grave emergency and justify constant attendance by special nurses whenever possible. Prolonged confinement in bed is highly inadvisable and as soon as possible the patient should be allowed out of bed. It is important to keep the patient's environment as stable as possible and to avoid sudden noises, shaking of the bed and unusual odors. As dim lights and shadows tend to confuse and frighten the patient, the room should be well lighted at all times. An especially important function of the special nurses should be to keep the patient in contact with reality and, with the attending physician, to offer frequent explanations and reassurance to the patient. Prognosis for ultimate recovery is good.

An example of this type of reaction is the case of a 38-year-old married woman who entered the hospital because of excessive vaginal bleeding. At operation the uterus, fallopian tubes, ovaries and appendix were removed. Three days after the operation, it was noted by the night nurse that the patient had become disoriented as to place during the night. The following day the patient thought she saw a man at the window, attempted to get out of bed, picked at the sheets and was mildly agitated. She misidentified people who passed her room and thought that her father, son and other relatives were standing just outside. On one occasion she thought that she saw the physician standing at the window laughing at her and on another occasion expressed the belief that her husband was dead. Within a period of a week the patient's condition had materially improved in that the psychotic features of her illness had subsided and she remained only somewhat anxious and apprehensive. Further convalescence was uneventful.

A similar type of toxic delirious reaction may occur in persons who have already suffered organic brain damage. The most common cause of damage of this type is cerebral arteriosclerosis or the degenerative changes associated with senility. The character of onset, the nature of the psychotic reaction and the treatment remain essentially the same.[1, 4, 8] The prognosis, however, must necessarily be more guarded. The presence of preexisting and unalterable organic damage means that as a rule recovery will not be complete. This incomplete recovery may be especially apparent to relatives who had not noticed, previous to the operation, the early subtle mental changes that may be associated with advancing arteriosclerosis or the advent of senility. It is by no means justifiable to look upon these reactions as hopeless and as representing altogether irreversible damage due entirely to vascular or senile mental changes. The regression of the delirious state may well leave the patient in relatively good mental health and the final prognosis should be reserved until the patient has had benefit of adequate therapy.

An example of such reactions is the following: A man 79 years of age was operated on for the repair of a right inguinal hernia. Three days after the operation the patient was noted to be "foggy—not orientated." The patient became restless, finally agitated and irrational. He was of the opinion that he had "finished that piece of work" and was feeling rather satisfied with himself. He thought that he was in an old store on Main Street and that the cross streets had not yet been named. He spoke with animation of picking olives and of developing a method of producing uniform color of the olives. Treatment consisted of inducing the patient to take adequate food and fluids. Paraldehyde was used as a sedative. At the end of approximately two weeks the acute symptoms of the psychotic reaction had subsided. At that time the patient was feeling quite well and except for a tendency to be somewhat rambling and repetitious in his conversation and mildly forgetful of recent events, his mental condition was satisfactory.

The third category of mental symptoms to be discussed embraces those reactions in which a major functional psychosis has been precipitated by the stress and trauma of a surgical operation. These reactions may appear immediately after operation or their appearance may be delayed for several days. The type of reaction is largely determined by the patient's previous personality, but is usually either of schizophrenic or manic-depressive character. During the early phases of their development, these reactions may be complicated by toxic delirium. Differentiation between major functional psychosis and toxic delirium at this stage can be far more easily made on paper than at the bedside. In the presence of true clouding of consciousness, it is inadvisable to make a diagnosis other than of toxic delirium. If toxic delirium is thought to exist, the initial treatment should be directed toward this condition. As the symptoms of the toxic delirium subside and the functional psychotic reaction emerges, it is important to evaluate it as early as possible since the average general hospital is not adequately equipped to provide care for the patient. For this reason arrangements should be made as soon as possible for care in an appropriate psychiatric hospital, if such care appears to be indicated.

It should not be presumed, however, that treatment of these reactions must await transfer to a psychiatric hospital. The fact that the patient is rendered relatively helpless following operation, or the nature of the surgical procedure itself,[6, 7] may activate latent anxieties to such a degree that a psychotic reaction results. During the early phases of its development this reaction may be alleviated by discussion of these anxieties and reassurance concerning them. Such prompt attention may at times prevent the development of a more severe and lasting morbid reaction.

An example of this type of reaction is the case of a 65-year-old unmarried woman who was operated on for carcinoma of the rectum. A colostomy was made and the rectum was removed. The patient's convalescence seemed satisfactory for the next ten or eleven days. At the end of that time the patient began to lose strength to the point

where she was unable to turn over in bed without aid from the nurse. She became nauseated and would not eat. Although the colostomy functioned well and the patient had been assured that the tumor was successfully removed, she felt "discouraged." She was quite certain that she could not get well. Thoughts of the colostomy were repugnant; she felt "unclean" and unable to face her friends. She would weep often as the result of these thoughts.

This patient had been reared by an over-solicitous mother who was morbidly concerned with the health of her children. The patient was always excessively meticulous and conscientious. Especially prominent was her inordinate concern about body cleanliness. Treatment of her condition consisted of long discussions concerning her ideas of cleanliness and her need for neatness. The means of caring for her colostomy were discussed in detail. In addition, the patient was repeatedly reassured that she would ultimately recover good health. At the end of two weeks the patient had improved enough to be able to take food fairly well and was even able to walk short distances in the hall. Within three months from the onset of her depressive reaction she was again relatively well-adjusted and carrying on her usual daily activities.

COMMENT

The role which surgical operation plays in precipitating these mental disturbances is probably not specific. The operation would appear to be merely one of several similar types of stress which may precipitate similar mental disturbances. Acute febrile illnesses, severe trauma and childbirth may be followed by disturbances of this kind. Classification and treatment of them may profitably be carried out along similar lines.[3]

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REFERENCES

1. Avery, Loren W.: Common factors precipitating mental symptoms in the aged, Arch. Neurol. and Psychiat., 54: 312-314 (Oct.), 1945.

2. Bowman, Karl M.: The treatment of acute deliria, Virginia Med. Monthly, 67:724-732 (Dec.), 1940.

3. Cruickshank, W. H.: Psychoses associated with pregnancy and the puerperium, Canadian Med. Assoc J., 43: 571-576, 1940.

4. Doty, Edwin J.: The incidence and treatment of delirious reactions in later life, Geriatrics, 1:21-26 (Jan.-Feb.), 1946.

5. Doyle, J. B.: Postanesthetic and postoperative psychosis, Anesth. and Analg., 7:313-317 (Sept.-Oct.), 1928.

6. Hartz, Jerome: Thoracoplasty and claustrophobia, Psychosom. Med., 8:344-346 (Sept.), 1946.

7. Lindemann, Erich: Observations on psychiatric sequellae to surgical operations in women, Amer. J. Psychiat., 98:132-139 (July), 1941.

8. Robinson, G. Wilse, Jr.: The toxic delirious reactions of old age, Amer. J. Psychiat., 99:110-115 (July), 1942.

9. Romano, John and Engel, George L.: Physiologic and psychologic considerations of deliria, Med. Clin. No. Amer., 28:629-638 (May), 1944.

Discussion by A. VINCENT GERTY, M.D., *Pasadena*

The presentation of such a paper as Dr. Rushton's brings to our attention certain factors that may be utilized in preventing a rather costly convalescence or even mortality.

As I read Dr. Rushton's paper, prevention seemed to me the thing of greatest importance. It implies that to prevent postoperative psychosis, or to decrease the occurrence of such conditions, two things should be stressed: (1) A very thorough chronological history, and (2) better mental evaluation of the patient.

The family and personal history should be examined for mental disorders, alcoholic tendencies, drug addictions, psychoneurotic backgrounds.

This calls to my memory one case in which a thorough history was taken regarding the necessity of operation but the history of mental illness in the family and in the patient was not obtained—because the family purposely evaded the issue, feeling that the hysterectomy proposed would prevent certain mental symptoms which they saw developing from previous experience. Two days after operation the patient developed frank psychosis; later, evisceration peritonitis developed and the patient died.

If history of alcoholism or drug addiction is elicited, proper therapy with paraldehyde and fluids to prevent the toxic reaction following operation may prevent psychosis.

The second factor is the evaluation of the patient's personality by watching his attitude and behavior and following his stream of conversation. Thirdly, the emotional reactions should be noted, analyzing to a certain degree the patient's elations, expressions, fears, and swings of mood. Fourth, the content of thought should be observed to gain some insight into the patient's philosophy of living and life. Fifth, a survey of the patient's judgment, reasoning and insight may give some concept of his mental grasp of the seriousness and the nature of the surgical procedure.

Discussion by WALTER F. SCHALLER, M.D., *San Francisco*

Although in most cases of postoperative psychosis the patient ultimately recovers, the occurrence of such complications, always a matter of concern to the physician, raises the question as to the cause; Was it entirely psychological, was some unknown toxic factor responsible, were degenerative or arteriosclerotic brain changes present, or was there some inherent constitutional factor? These latter possibilities fall within the scope of neuropsychiatry in its proper application of the term, namely, the relationship of neurology to psychiatry.

Psychiatry has become so overwhelmingly oriented in the psychological approach that Dr. Rushton's presentation offers a very timely opportunity to stress organic causes of mental disturbances such as are activated by interferences with normal bodily processes, namely, surgical operation. Firstly, we have delirious states, so precisely and clearly outlined by the writer and most probably determined by toxic effects of tissue destruction; secondly, pathologic change within the brain itself; and, thirdly, the genetic factor so convincingly demonstrated by Kullman in his study of identical twins. In a paper read by Doctors Wilson and Rupp before the Section on Nervous and Mental Diseases of the American Medical Association in San Francisco in 1946, tabulations revealed a surprising incidence of mental disorders of all classes associated with organic diseases of the brain and other organs; in fact, there were such associations in somewhat over half of all cases in mental hospitals. Surprisingly, little is mentioned of these facts in present day psychiatric literature, which on the other hand, overstresses environmental and developmental factors, particularly in the tenets of the psychoanalysts.

As to treatment, I agree that paraldehyde is a very effective sedative and much more satisfactory in its effects than many of the newer pharmaceutical products. If it were not for the disagreeable taste and smell of this drug, it would probably displace many of those now in common use. I have, however, in selected cases used bromides and the barbiturates. The former must be closely checked for toxic and cumulative effects; the latter for prolonged action and side effects, especially of dreams and for aggravation of delirium.

Surgical Treatment of Myasthenia Gravis

WILLIAM H. SNYDER, JR., M.D., *Hollywood*

SUMMARY

On the basis of statistics, total thymectomy should be considered for the treatment of myasthenia gravis if the disease is severe and response to well regulated medical management is unsatisfactory. That improvement follows the operation in many cases, particularly if symptoms are of recent development, is indicated by reports in the literature. Of two patients operated upon by the author, one whose symptoms were of short duration was benefited objectively and subjectively; the other, in whom symptoms had existed seven years, said she felt better but there was no objective evidence of improvement. Patients should be told beforehand of the operative risks involved and the uncertainty of prognosis following the procedure.

TOTAL thymectomy has been performed many times during the last seven years in severe cases of myasthenia gravis which have been resistant to the best of medical management. It is for the few seriously afflicted patients whose response to prostigmine and other medical therapy is poor that operation is to be considered. In a series of 20 patients upon whom complete thymectomy was performed by Blalock[2] and in another series of 60 operated upon by Keynes[4] the mortality rate was approximately 20 per cent and the rate of cure approximately 50 per cent. These facts were explained to the author's patients, and two of them who were not doing well on medical management elected operation. These two cases will be reported in this presentation, with special reference to the surgical management of this condition.

DIAGNOSIS AND MEDICAL MANAGEMENT

Recognition of myasthenia gravis depends upon the symptoms and signs associated with weakness of the muscles of the eye, larynx, pharynx, jaws, face and extremities. These may begin insidiously or abruptly and at any age. One of our patients was 21, the other 19. In one the symptoms had been present for seven years, in the other for four months. Fatigue takes place rapidly in the muscles involved. It is lessened by rest and by prostigmine. This drug introduced by Remen[5] and popularized by Walker[8] is so specific in myasthenia gravis that the response to its administration is diagnostic of the condition (Viets[7]).

The optimum dosage varies. In one of our cases it was 120 mg. of prostigmine bromide daily and in the other 250 mg. Other drugs such as ephedrine sulfate, potassium chloride and guanidine hydrochloride have not been used. As the proper medical management is in the province of the internist and general practitioner it will be discussed herein no further.

INDICATIONS FOR OPERATION

The development of total thymectomy for myasthenia gravis began with Blalock[3] about seven years ago. He recognized the frequent occurrence of thymic tumors with myasthenia gravis and he furthermore reasoned that, even when no tumor existed, removal of the thymus might be effective. The validity of this assumption has been borne out in about 50 per cent of the several series aggregating 80 cases (Table 1) of total thymectomy. In nine of these cases the patient had a thymic tumor but the incidence of cure in them was no greater than in those cases in which no tumor existed. (In neither of the author's two cases was there evidence of thymoma either by x-ray previous to operation or by a pathological examination of the removed gland.) The mortality rate in the total series was approximately 20 per cent. In this connection, however, it must be recognized that the operative group included the most severely afflicted patients. Contrasting this operative group with a series of 175 patients reported by Viets which were on purely medical management, there were 14 per cent of apparently permanent cures and a mortality rate of 20 per cent over a ten-year period.

TABLE 1.—*Results of Thymectomy*

	Keynes	Blalock	Viets	Total
Well or greatly improved	29	8	4	41
Ill or slightly improved	12	8	4	24
Operative mortality				15

On the basis of these facts it seems reasonable to conclude that operation should not be considered except for those patients with severe myasthenia gravis who do not respond satisfactorily to a well regulated regime of medical management. Furthermore it seems wise to explain the risks and the possible benefits and allow the patient to decide whether or not he desires operation.

Duration of the myasthenic symptoms may be of some importance in the prognosis following operation. In the series of 80 cases only one of the

Presented before the Nineteenth Annual Meeting of the Pacific Coast Surgical Association in Los Angeles, California, February, 1948.

patients obtaining good results had had symptoms longer than five years. One of the author's patients with symptoms existing for seven years did not show objective improvement following thymectomy. X-ray therapy has often been proposed as an alternative to the more radical surgical attack. However, almost all authorities are agreed that it is ineffective and should not be utilized.[7]

PREOPERATIVE TREATMENT

Preparation of the patient for operation includes special attention to the respiratory tract. Any history of a cold in the last few weeks is an indication for postponement. Penicillin should be given prophylactically for a few days before and continued through several days after operation. Face masks should be used by all those attending the patient. Prostigmine should be given in dosages producing maximum therapeutic effect. This means anywhere from a few tablets of 15 mg. of prostigmine bromide to 30 such tablets spaced throughout the 24 hours. In addition, 1.5 mg. of prostigmine methyl sulfate is given hypodermically just before and during and after operation until oral administration can be resumed. Determination of the patient's blood group before the operation and administration of blood during the procedure should be a part of the routine. Morphine should be limited to small doses. Atropine must be used more frequently than in other operations, both because of the heightened secretions and because it counteracts the stimulating effect of prostigmine on smooth muscles.

SURGICAL TECHNIQUE

The operation, the technique of which was developed by Blalock and Keynes, is performed under intubation or under pressure anesthetic. Ether is safe and satisfactory. Only a very little, 1 to 2 ounces, was necessary in our two operations. A low thyroid incision (Figure 1) was made. This was joined in the center by a longitudinal incision over the sternum extending down to the fourth interspace. The neck dissection was then developed so that the lower poles of the thyroid were exposed. Just below these the upper lobe of the thymus was visible. (In one of our cases the right lobe of the thymus extended up into the neck well beyond the level of the thyroid cartilage. Ordinarily it ends at

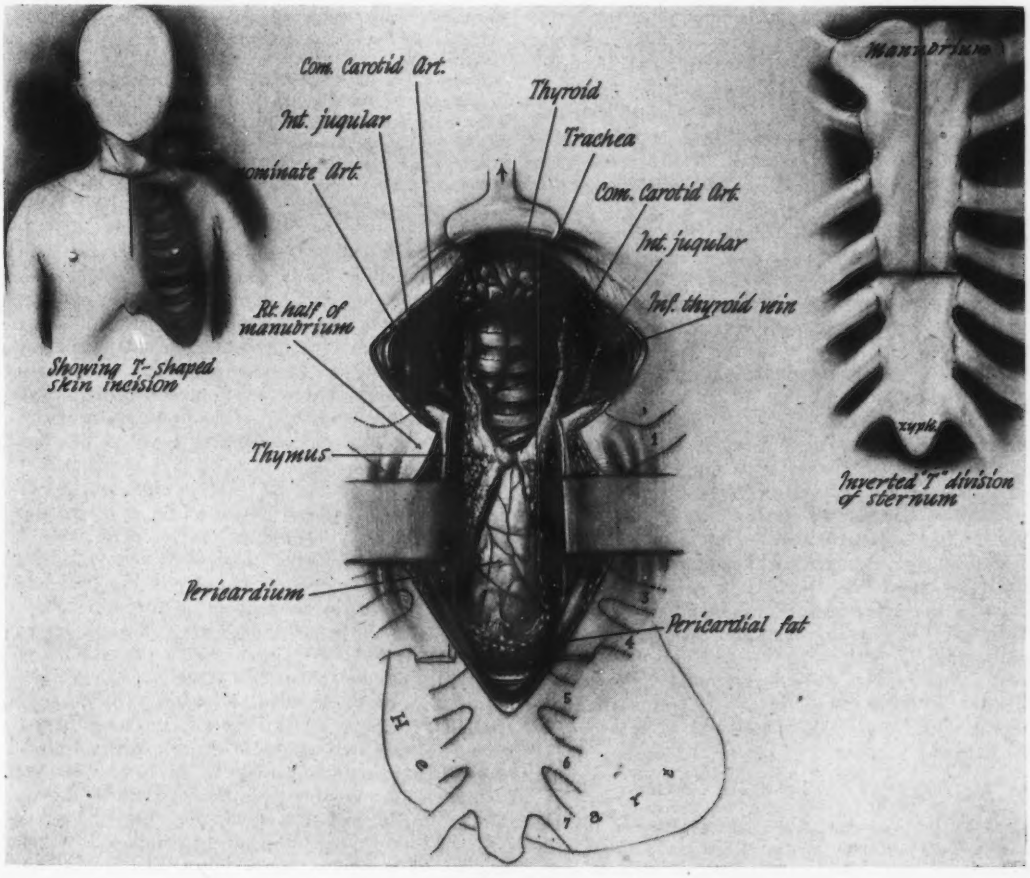

Figure 1

the thyroid.) The neck dissection completed, a finger was inserted as far as possible beneath the jugular notch on the posterior surface of the sternum separating the pleura in the midline. The sternum was then split for a short distance. (This may be done with a Schumacher rib cutter or with a Lebsche sternum splitter.) The edges of the sternum were then separated with retractors and further finger dissection of the pleura from the posterior surface of the sternum was easily accomplished. The process was continued to the fourth interspace at which level two outward cuts were made in the two longitudinal halves of the sternum and these were separated. This exposed the thymus gland completely. (It can usually be identified by following the upper exposed lobes downward and separating the pleura from its anterior surface.) The lobes were separated from the fatty tissue covering the pericardium. All the small arteries to the thymus gland were carefully ligated as a precaution against postoperative mediastinal hemorrhage, one of the most difficult complications to control. The main tributary vein from the thymus, which joins the left innominate, was carefully isolated and tied. After the completion of the removal of the gland, several strips of Gelfoam were applied to areas where there was a general ooze. Another method that has been used to control the bleeding from the raw surfaces of the mediastinum is the insertion of a ureteral catheter and frequent aspiration, as suggestion by Ralph Adams,[8] but this was not found necessary. We used a Penrose drain brought out through the incision in the neck, feeling that this was a worthwhile safety measure.

In closing the wound, the halves of the sternum were brought together with two or three heavy silk sutures passed completely around the bone and tied on the anterior surface. Fascia overlying the sternum was then closed with interrupted fine silk. Time required for the entire procedure was from one and one-half to two hours. Both patients stood the procedure well.

Immediately following, the trachea was thoroughly aspirated. The patient in each case was given 1.5 mg. of methyl prostigmine hypodermically. This was continued every two to three hours until he could take the prostigmine by mouth. An oxygen tent was provided. Penicillin was administered in full dosages. The patient was allowed fluids by mouth as soon as they were tolerated. Using a portable machine, roentgenograms of the chest were taken on the first and second days postoperatively to determine the size of the mediastinum. Ambulation was allowed early despite the division of the sternum. The oral administration of prostigmine bromide was adjusted to accord with the patient's needs.

CASE REPORT

The patient, 19 years of age, was admitted to the Los Angeles County Hospital because of weakness of the muscles of the extremities. Four months previously profound weakness of the muscles of the arms had developed following a respiratory infection so that the patient had to remain in bed for several weeks. Two months before hospitalization the condition was diagnosed as myasthenia gravis. By this time the patient was able to be up only a little while each day. In addition to the weakness of the extremities there was diplopia, some difficulty in swallowing and weakness of the facial muscles. All symptoms and signs regressed with the giving of prostigmine bromide (15 mg. divided into ten doses daily) but even when the dose was doubled the patient was still unable to work and had to be in bed a good part of each day. After preliminary rest and regulation of the prostigmine therapy in the hospital, the patient was prepared for thymectomy, which he elected after the risk of the procedure and the prognosis after operation were explained. A preliminary tonsillectomy was performed because of badly infected tonsils. Three weeks later a thymectomy was done, using the previously described technique.

The thymus gland measured about 20 cm. in length and weighed 28 gm. Neither the gross appearance nor microscopic appearance was remarkable.

Postoperatively 1.5 mg. of prostigmine methyl sulfate was given hypodermically about every hour for the first 48 hours. Gradually the frequency of administration was reduced and the patient was placed on the previous preoperative dose of prostigmine bromide by mouth. Penicillin was administered in large dosages. On the fifth day postoperatively the patient experienced considerable difficulty in breathing and the wound was opened but no clot or hematoma found. Gradually his condition improved. Except for a low-grade infection following the secondary surgical procedure recovery was uneventful. At the time of discharge, prostigmine, to be taken in doses of 1.5 mg. six times daily, was prescribed. When examined five months later, he was feeling better than at any time since the onset of the disease, was back at work and was taking only three doses of prostigmine daily on occasion. In weight and strength he had returned to normal.

RESULTS

It is not possible to draw any conclusions from experience in two cases. One patient had had symptoms for seven years. There has been no objective improvement since the operation, but subjectively she seems to have been benefited, as she persistently states that she feels stronger. Further observation will be necessary before any final statement is made about this case. However, at the present writing it is not felt that the operation has been of any real benefit.

The second patient had had symptoms for only four months. He was unable to be up more than part of the day in spite of maximum dosages of prostigmine. Following total thymectomy he has been quite active all day while receiving only one-half the preoperative dose of prostigmine. It is believed that in this case there was real improvement following operation. In view of the results reported in the literature and actual experience with two cases here recorded, it seems reasonable to conclude that it is worthwhile offering total thymectomy to those patients with severe myasthenia who do not respond satisfactorily to the best of medical management. Furthermore the operations demonstrated to the author's satisfaction that the procedure of total thymectomy can be completed without mishap if adequate amounts of prostigmine are given before, during and after operation, if light

pressure anesthesia is given, and if the technique developed by Blalock and Keynes and here presented is carefully followed.

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REFERENCES

1. Adams, R.: Surgical treatment of myasthenia gravis, Lahey Clinic Bull., 4:10 (July), 1944.

2. Blalock, A.: Thymectomy in treatment of myasthenia gravis: report of 20 cases, J. Thoracic Surg., 13:316 (Aug.), 1944.

3. Blalock, A., Harvey, A. McG., Ford, F. R., and Lilienthal, J. L. Sr.: Treatment of myasthenia gravis by removal of thymus gland; preliminary report, J.A.M.A., 117:1529 (Nov. 1), 1941 .

4. Keynes, G.: Surgery of the thymus gland, Brit. J. Surg., 33:131 (Jan.), 1946. Keynes, G., and others: Symposium on surgical treatment of myasthenia gravis, Proc. Roy. Soc. M. Lond., 39:600 (Aug.), 1946.

5. Remen, L.: Zur Pathogenese und Therapie der Myasthenia gravis pseudoparalytica, Deutsche Ztschr. f Nervenh, 128:66, 1932.

6. Viets, H. R.: Diagnosis of myasthenia gravis in patients with dysphagia, J.A.M.A. (July 19), 1947.

7. Viets, H. R.: Myasthenia gravis treated with large doses of neostigmin methylsulfate, intramuscularly and intravenously, and with neostigmine bromide orally, J.A.M.A., 127:1089 (April 28), 1945.

8. Walker, M. B. L.: Case showing effect of prostigmine on myasthenia gravis, Proc. Roy. Soc. M. 28:759 (April), 1935.

Superficial Epithelioma of the Covered Parts of the Body

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SUMMARY

In individuals with primary cutaneous epithelioma there may be a widespread predisposition of the basal cell layer of the epidermis toward the production of growths of this type. The differential diagnosis usually can be made on clinical characteristics, but in some instances differentiation is difficult and a correct diagnosis may be reached only by microscopic examination of the tissue.

The radioresistance of this type of epithelioma is emphasized and the selection of the proper method of treatment is discussed.

Consideration of the factors of (1) size and location of the lesion, (2) age, and (3) general condition of the patient may result in a decision that, in some cases, no treatment is indicated. Biochemical, cytological and pathological studies of basal cell epithelioma might lead to a clearer understanding of the nature of epitheliomas in general.

BASAL cell epithelioma is a common skin neoplasm usually on the face and neck and occasionally on the covered parts of the body. Various kinds are recognized, such as the rodent ulcer, nodular, cystic, sclerosing, morphea-like, pigmented, and the superficial type. This paper will be confined to a discussion of the superficial variety.

Primary cutaneous carcinomas are classified by MacLeod and Muende[6] as follows:

1. Basal cell—rodent ulcer group.
2. Prickle cell.
3. Mixed, metatypical or baso-squamous cell.
4. Intra-epidermal.

I. *Clinical Characteristics of Superficial Basal Cell Epithelioma*

Superficial basal cell epitheliomas occur most often on the trunk, arms, and thighs. They are usually multiple, as many as 200 lesions having been reported in a single case. The lesion appears as a superficial, dry, erythematous scaling plaque with a sharply defined, slightly elevated, threadlike waxy edge (Figure 1). They vary in size from a few millimeters in diameter to 30 cm. or more, and are usually oval or circinate in form. A tendency toward healing in the center is often noted. In addition to superficial basal cell epitheliomas, other types of superficial carcinomas are recognized, namely, Paget's disease of the nipple, Bowen's squamous cell epithelioma in situ, and the baso-squamous type.

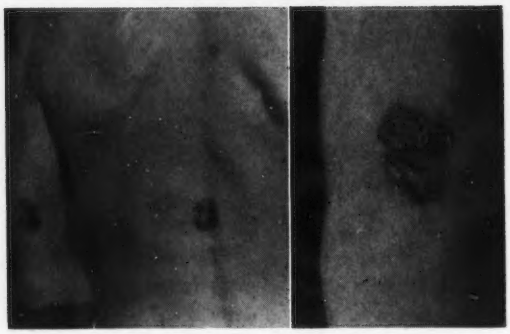

Figure 1.—Typical superficial basal cell epithelioma. Left, arm and back; right, close-up of arm lesion.

II. *Incidence*

In a recent analysis of a large series of cutaneous lesions, Sutton[13] found an incidence of 2.07 per cent of the superficial type of carcinoma. It is of interest to note that in his series of 560 cases, 95 per cent of the patients had basal cell epitheliomas on the head and neck and 3 per cent had lesions on the trunk. Tables 1 and 2 show the incidence and distribution of lesions found in the University of California Visible Tumor Clinic during the past ten years. It is noted that in this series of 487 basal cell lesions, 1.64 per cent were of the superficial or "body basal" variety. Basal cell epitheliomas of all types occurring on the trunk constituted 22 or 4.5 per cent of the total. Multiple lesions were present in 75 per cent of the cases. Seven of the eight patients treated by the author were females. Little[4] also found a preponderance of lesions in the females.

III. *Nomenclature*

Various terms have been employed to designate this group of superficial neoplasms. Little[4] described them as "erythematoid benign epitheliomas." Wise[14] preferred to call them "multiple superficial benign epitheliomas of the trunk." Other designations given the growths by various writers include: carcinoid of the skin, Bowen type epithelioma, Pagetoid epithelioma, and carcinoma cutis multiformis. The entire subject was greatly clarified in an excellent report by Montgomery[10] in 1929. He chose the term superficial epitheliomatosis and included under it, basal cell, squamous cell, and

Presented before the Section on Dermatology and Syphilology at the 77th Annual Session of the California Medical Association, San Francisco, April 11-14, 1948.

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baso-squamous or mixed cell intra-epidermal epitheliomas. Andrews[2] described them as intra-epidermal and multicentric epitheliomas.

Inasmuch as the large majority of these superficial epitheliomas are of the basal cell type rather than squamous cell or mixed, most of the present discussion will concern the former. However, it must be emphasized that although the intra-epidermal squamous cell tumors constitute the minority, the danger of them to the individual is potentially the greatest by virtue of their capacity for metastasis. Conversely, the body basal cell type is extremely slow-growing, rarely ulcerates, and probably never metastasizes or results in death of the individual. Certain clinical and histopathological features render the intra-epidermal and multicentric basal cell tumors analogous to other basal cell epitheliomas, and for this reason it is deemed better to designate them as such.

IV. *Etiology*

These relatively benign epitheliomas originate in apparently normal skin and are not preceded by nevi, verrucae, keratoses or other possible precancerous conditions. Many of the patients who have such lesions also have one or more ordinary basal or squamous cell epitheliomas, especially on the head and neck, at some time during their life. Some writers favor a theory of congenital predisposition and classify the condition among the nevoid dermatoses.[14] Anderson[1] is of the opinion that arsenic is the causative agent in the majority if not all cases of this condition. He has presented a convincing study to show that a history of the ingestion of arsenic can usually be elicited from these patients and he demonstrated the presence of

TABLE 2.—*Analysis of Cases of the University of California Visible Tumor Clinic*

Number of cases of basal cell epithelioma	487	
Number of cases of basal cell epithelioma on the trunk (all types)	22	4. 5%
Males	10	
Females	12	
Number of cases of superficial basal cell epitheliomas	8	1.64%
Location of lesions:		
Interscapular	2	
Scapular	4	
Anterior chest	1	
Upper arm	3	
Hip	1	
Abdomen	3	
Lower back	2	
Thigh	1	
Inguinal	1	
Cases with multiple lesions	6	
Cases with single lesions	2	
Other types of epithelioma in patient	3	
History of arsenic ingestion	3	

TABLE 1.

Case No.	*Sex & Age*	*No. of Lesions*	*Location of Lesions*	*Duration of Lesions*	*Other Types of Epith. in patient*	*History of Arsenic*	*Histopath.*
1.	F65	2	Interscapular Scapular	5 years	Multi-epith. squam. and basal on face and neck	Potarsenite Sod. caco. 1917	Multicentric basal cell epithelioma
2.	F72	5	Lower back Buttocks Abdomen Upper arm	15 to 20 years	Epith. squam. of tongue		Multicentric basal cell epith. and mixed intra-epidermal sq. cell epith.
3.	M55	5	Ant. chest Upper arms Abdomen Thigh	20 years		Fowler's solution for 2 yrs. at age 35 for psoriasis	Multicentric and intra-epidermal basal cell epith.
4.	F49	12	Scapular Inguinal Abdomen Ant. chest	3 years		Urine determination + for As in Feb., 1942	Multicentric basal cell epith.
5.	F84	1	Scapular	4 years			Multicentric basal cell epith.
6.	F63	1	Scapular	2 years			Multicentric basal cell epith.
7.	F69	3	Lower neck Interscapular Lower back	3 years	Post-auricular epith. basal. Ca cervix	Psoriasis for years. No history of As	Neck and post auric. epith. basal. Back lesions. Multicentric epith. basal
8.	F63	2	Upper arm Ant. ankle	20 years 5 years		Fowler's solution for 5 yrs. at age 23 for "nerves"	Multicentric basal cell epith. (arm). Intra - epidermal squam. cell epi. ankle

abnormal amounts of the element in the lesions of patients he treated. Furthermore, in addition to the presence of superficial epitheliomas on the trunk, some of his patients presented typical arsenical keratoses elsewhere. No attempt was made in the cases treated by the author to demonstrate the presence of arsenic in the tissues, blood, or urine.

Piper[12] expressed the belief that the relative frequency of this type of epithelioma in psoriasis is due to chronic irritation which stimulates growth of the inherent germ anlage. He felt that tar medications, roentgen-ray treatment, and arsenicals might be causative factors, but at the same time he conceded that the correlation might be purely coincidental.

Montgomery[11] offered the opinion that arsenic may accelerate latent or dormant cutaneous malignant foci of the skin. He believed that individual sensitivity or susceptibility to arsenic must be considered.

Johnson[3] recently emphasized the fact that the type of carcinoma occurring on the covered parts of the body differs from that on the exposed parts. It would seem that the protection afforded the skin by clothing may in some way affect or influence the development and character of these epitheliomas. Actinic rays, wind and weather are apparently not factors as in the case of carcinomas developing in exposed skin, nor does trauma appear to bear any relationship to their origin.

V. *Histopathology*

All types of cutaneous epitheliomas commence intra-epidermally, and in typical intra-epidermal cancers the basal cells proliferate upwards and sideways into the prickle cell layer. The rete pegs are thereby broadened and the thickness of the epidermis is increased. In the early stages the basal cell layer remains intact, but later the basal cells grow as solid masses into the upper cutis or assume an alveolar pattern to simulate one of the skin appendages. Often there are multiple points of origin for these masses in the epidermis, and such lesions have been designated multicentric basal cell epitheliomas (Figure 2). Mitotic figures are present but seldom numerous. There is usually a slight plasma cell and lymphocytic infiltration in the upper cutis. At times there is a tendency for fibrous tissue to encapsulate the growths. Madsen[7, 8] concluded that the tumor starts at a central point from which it spreads continuously in a radial pattern along the interpapillary processes of the epidermis. From a study of horizontal serial sections on 18 cases, he concluded that the epitheliomas are unicentric—there being no evidence that the tumor at onset has not consisted of one epithelioma located in some point in the interpapillary processes. Other writers, notably Montgomery and Wise[10, 14] have shown multiple points of origin from the basal cells of the epidermis. Less often the nests of abnormally proliferating cells are of prickle cell (Figure 3) or baso-squamous cell origin, in which instances the growth may terminate as a squamous cell epithelioma.

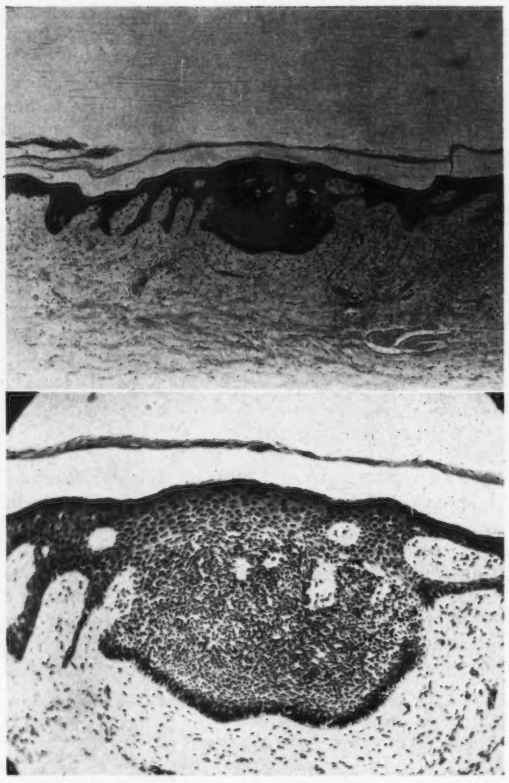

Figure 2.—Photomicrograph of multicentric basal cell epithelioma. Top, lower power; bottom, high power.

In all eight cases in the author's series the lesions were multicentric in pattern; one patient (Case 2 in Table 1), in addition, had mixed and intra-epidermal squamous cell involvement; two patients (No. 3 and No. 8) had intra-epidermal basal cell and squamous cell activity, respectively. It was observed that the various types of tumor cell activity, that is, multicentric, intra-epidermal basal or squamous cell, and mixed cell may occur alone in different lesions on the same patient, or, in some instances, may be combined in the same histopathological section.

VI. *Diagnosis*

The differential diagnosis includes psoriasis, chronic discoid lupus erythematosus, late syphilis of the skin, eczematoid dermatoses, chronic granulomas, superficial and deep fungus infections of the skin, keratoses, epitheliomas secondary to other causes (such as radiodermatitis), or xeroderma pigmentosa, and intra-epidermal squamous cell epitheliomas (such as Paget's disease of the nipple), and Bowen's squamous cell epithelioma. The intra-epidermal squamous cell lesions frequently are moist and eczematous but not invariably so. One of our

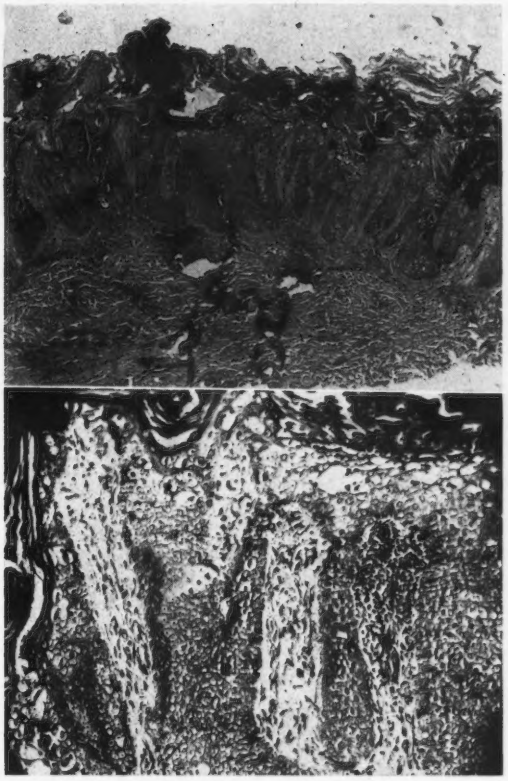

Figure 3.—Photomicrograph of intra-epidermal squamous cell epithelioma. Top, low power; bottom, high power.

patients (Case 8) had a lesion on the ankle of five years' duration which clinically suggested superficial basal cell epithelioma. Histopathologic study revealed a typical intra-epidermal squamous cell epithelioma (Figure 3).

The conditions noted in the preceding paragraph are usually readily distinguished and the lack of the typical threadlike border in all of them is a valuable diagnostic point. At times, psoriasis may be difficult to differentiate from superficial epithelioma especially when the two coexist. In this instance, as well as in the case of intra-epidermal squamous or mixed cell epithelioma, microscopic examination of the tissue is essential for a correct diagnosis, since clinically they may be identical.

VII. *Treatment*

Four different methods of treatment are available, namely: (1) electrosurgical; (2) surgical; (3) irradiation; (4) chemosurgical.

1. *Electrosurgical:* For the majority of lesions, this is perhaps the method of choice. The author's experience has been limited to the use of the curette, fulguration and desiccation. For small lesions, this has been a satisfactory method except in the sternal area where in one instance delayed healing was encountered. The cosmetic result from this type of therapy is usually excellent.

2. *Surgical excision:* This method is preferable for large lesions. Also, in the case of certain lesions occurring on the anterior chest (sternal area), the most satisfactory results are achieved by this approach. In some instances, a skin graft is necessary to cover the defect.

3. *Irradiation:* Included here are x-ray, radium and radioactive elements, such as P_{32} (radioactive phosphorus). The cells producing these growths are highly differentiated and this would seem to account for their apparent radioresistance. This fact, together with the tendency for the lesions to attain a large size, indicates that this type of epithelioma does not lend itself well to irradiation therapy. The author's experience confirms the conclusions, reached by other observers, that undesirable late radiation effects may result if a dosage sufficient to eliminate the growth is given. Low-Beer[5] has shown that the biological depth effect on the skin of beta radiation from externally applied P_{32} during the acute phase (bullous epidermolysis) of the reaction, extends to 5 mm. In the late phase (215th day) the reaction was detectable to a depth of 2 mm. Inasmuch as strands of tumor cells may extend beyond this depth, and considering the mature type of cell involved, this method is not believed to be generally desirable.

4. *Chemosurgical:* In the past, trichloracetic acid combined with curettage has been employed with success. However, the results of the method are uncertain and it is not suitable for large lesions. It is possible that these tumors would lend themselves well to treatment by the method advocated by Mohs.[9] This method is a combination of chemical fixation of the tissue in vivo and surgical excision. The entire technique is controlled by histopathological examination of all excised tissue, thereby insuring that all of the tumor and its ramifications are removed. So far as is known, superficial epitheliomas have not as yet been treated in this manner.

VIII. *Discussion*

Treatment failures have resulted from electrosurgical, surgical, and irradiation methods. Not all such failures can be attributed to the allowance of an inadequate margin surrounding the lesions, or to insufficient depth of destruction or removal. It is believed that the tendency toward the development of these epitheliomas may be widespread in certain individuals, and that since incipient lesions are only microscopically detectable, some "recurrences" are actually new lesions not previously clinically apparent. In many instances a cure can be effected by complete removal of the tumor with an adequate margin of surrounding normal tissue. A microscopically controlled technique should prove of great value in this respect and further studies should be made utilizing such a method.

The multicentric origin of many of these lesions seems to indicate a widespread predisposition on the part of the epidermis to proliferate in this manner in some individuals.

Experience in one case (No. 4 in Table 1) well illustrates this tendency. Approximately one year after the excision of a large lesion on the upper back, just to the left of the mid-line, a new lesion appeared about 4 cm. below the tip of the scar. This was not considered to be a recurrence. An area of normal appearing skin on the left lower back was chosen for biopsy. The area chosen was approximately 10 cm. from any previously involved skin. Histopathological study of the tissue showed a definitely abnormal character of the basal cell layer. The lack of uniformity of the cells and their tendency toward uncontrolled proliferation were apparent (Figure 4). The observation of persons who produce large numbers of basal cell epitheliomas would also indicate that a constitutional tendency may be present.

It is not believed that the ingestion of arsenic can account for the development of these lesions in all individuals. None of the eight patients in the author's series presented keratoses, pigmentation or other objective evidence of previous arsenic ingestion. However, as several had a history of prolonged ingestion of Fowler's solution, the possibility occurs that some patients who received arsenic internally for psoriasis in years past might actually have had superficial epitheliomas initially rather than psoriasis.

It does seem that a step might be made toward a clearer understanding of epithelial neoplasms in general by exhaustive cytological, pathological and biochemical studies of this type of skin tumor. Here are epithelial cells, not entirely malignant but more or less attenuated, whose growth processes might

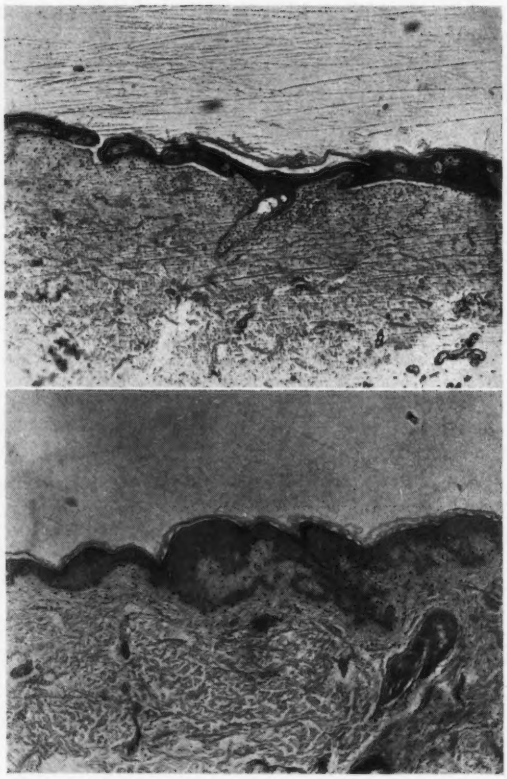

Figure 4.—Photomicrographs of grossly normal skin in vicinity of superficial basal cell epitheliomas. Top, Case 7 in Chart 1; bottom, Case 5.

TABLE 3.

Case	*X-Ray*	P_{32}	*Curette and Desiccation*	*Excision*
1.	None	None	Feb. 1940. Recurved at edge of scar. May 1941: C & D repeated. No recurrence after 7 years	None
2.	None	None	All treated with satisfactory result after 1 year	None
3.	5,100 r—right arm lesion, 1943. Now marked telangiectasia and atrophy	Equiv. 2,000 r to lesion on left chest. Failed to respond in 6 months	Ant. chest. 1943. Failed to heal in 6 months.	Previously treated ant. chest lesion excised and grafted with satisfactory result after 1 year
4.	1939-40. L. scapular lesion failed to respond. Dosage not known		1944. 2 back and 2 chest lesions. 1944: L. scapular lesion recurred in 1944. 1948: 3 small lesions on lower back	Scapular lesion excised 1944. 7 of recurrence. 1947: biopsy inconclusive. 5 or 6 new match head to pea-sized lesions on lower mid-back and flank.
5.	No treatment because of patient's age			
6.	None	None	August 1941. Good result	None
7.	None	Sept. 1944. Activity, Dec. 1946. Lesion then excised.	1943 — Recurred — lesion then excised	1944: Excision; recurred in 1946. 1946: all excised with satisfactory results to date, Jan. 1948.
8.	No treatment as yet.			

be studied with a view to solving at least a part of the mystery of epitheliomas.

At times the very important question of the necessity for treatment must be carefully considered inasmuch as the body basal cell epithelioma is relatively benign. Advanced age and poor general health of the patient, together with the size and location of the lesions in certain instances, might result in a decision that no treatment is indicated.

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REFERENCES

1. Anderson, N. P.: Bowen's precancerous dermatosis and multiple benign superficial epithelioma—Evidence of arsenic and etiological agent, Arch. Dermat. & Syph., 26:1052-1064 (Dec.), 1932.

2. Andrews, G. C.: Diseases of the skin, W. B. Saunders, Philadelphia, 3rd Ed., 1947, p. 734.

3. Johnson, M.: Multiple superficial carcinomata of the skin, Brit. J. Dermat. & Syph., 57:58 (Mar.), 1945.

4. Little, E. G. G.: Erythematoid benign epithelioma, Brit. J. Dermat. & Syph., 35:435-450 (Dec.), 1923.

5. Low-Beer, B. V. A.: External therapeutic use of radioactive phosphorus; I. Erythema Studies, Radiology, 47:213-222 (Sept.), 1946.

6. MacLeod, J. M. H. and Muende, I.: Pathology of the skin, Paul B. Hoeber, Inc., New York, 3rd Ed., 1946, pp. 98-107.

7. Madsen, A.: Superficial basocellular epithelioma, Acta Dermat. Ven. 22:1-161, 1941.

8. Madsen, A.: The neoplastic nature of Bowen's disease; examination of a flat lesion in horizontal sections, Act. Dermat. Ven., 22:24-34 (Feb.), 1941.

9. Mohs, F. E.: Chemosurgical Treatment of Cancer of the Face. A microscopically controlled method of excision, Arch. Dermat. & Syph., 56:143-156 (Aug.), 1947.

10. Montgomery, H.: Superficial epitheliomatosis, Arch. Dermat. & Syph., 20:339-357 (Sept.), 1929.

11. Montgomery, H.: Precancerous dermatosis and epithelioma in situ, Arch. Dermat. & Syph., 39:387-408 (Mar.), 1939.

12. Piper, H. G.: Special forms of superficial epitheliomatosis, Dermat. Wchnschr., 112:429-433 (May), 1941.

13. Sutton, R.: Carcinoma of the skin; statistical analysis of 560 basal cell carcinomas, J. Missouri M. A., 39:203-207 (July), 1942.

14. Wise, F.: Multiple superficial benign epithelioma of the skin, Arch. Dermat. & Syph., 19:1-17 (Jan.), 1929.

Discussion by L. H. WINER, M.D., *Beverly Hills*

There is so little to add to Dr. Harding's presentation that I may be forgiven for reemphasizing some of the points he has made.

Intra-epidermal prickle cell carcinoma and superficial basal cell epitheliomatosis are clinically similar in that they involve the same sites. They have a prolonged course of years without change of appearance. They are superficial plaques and show very slight tendency to ulcerate.

Bowen's disease and intra-epidermal squamous cell carcinoma show definite histologic characteristics. These are: (1) flattening of the basal cells; (2) the presence of irregular asymmetric mitotic figures; (3) individual cell keratinization, and (4) "Bowen's cell" with its amitotic, irregular clumped nucleus and wide bordered cytoplasm. The superficial basal cell epithelioma has the following histologic characteristics: (1) there are multicentric areas of proliferation of mature basal cells, some of which are cuboidal and others spindle-shaped; (2) these proliferating basal cells contain larger darker nuclei than the normal basal cells; (3) prickles are absent between the cells; (4) a few mitotic figures are present; (5) there is complete absence of amitotic figures.

As is the case in any tumor, the composition cannot be known unless histologic examination is performed. Occasionally a clinically diagnosed basal cell carcinoma turns out to be a squamous cell carcinoma histologically. In like manner, a clinical superficial basal cell epithelioma has been diagnosed intra-epidermal prickle cell carcinoma histologically. This was the situation in Case 8 in Dr. Harding's paper. There have been cases of intra-epidermal basal and intra-epidermal squamous (prickle) cell carcinoma side by side in the same section of tissue. This has been observed similarly in a section of basosquamous cell carcinoma. These intra-epidermal lesions may be name intra-epidermal basosquamous cell carcinoma.

The frequency with which arsenical ingestion is associated with subsequent occurrence of superficial epitheliomatosis is more than a coincidence. The stimulating effect of arsenic on the epidermis is observed frequently. It is readily conceivable that hyperplasia may progress to neoplasia which is then an irreversible process.

The "so-called recurrence" in the author's Case 4 certainly emphasizes the multicentric origin of these lesions. It is probably based on the multiple areas of sensitization to carcinogenic stimuli in the epidermis. It may also be due to embryonic structural rests which suddenly begin to proliferate and recapitulate in a disorderly manner. This results in the formation of an epidermal neoplasm of indeterminate origin.

Some observers claim that superficial basal cell epithelioma is relatively benign. The intra-epidermal prickle (squamous) cell carcinoma is a malignant lesion. It eventually breaks through the epidermis and metastasizes. Therefore, only by histologic examination can one conscientiously give proper treatment and prognosis.

We can only theorize why superficial basal cell epitheliomas occur on the covered skin of the body. Anatomically, the epidermal ridges and the follicle apparatus are quite superficial in these areas. Some of these lesions histologically do resemble embryonic hair follicle buds, as proposed by Foot in his studies of adnexal carcinoma of the skin.

I agree with Dr. Harding's treatment of these lesions—destruction by whatever modality fits the particular case best.

Radioresistance, as regards roentgen ray therapy, I think has been over-emphasized. Failures of cure in superficial basal cell epithelioma following this form of therapy may be recurrences, resulting in the manner mentioned in Case 4 following excision. Mohs' work has shown that recurrence is most frequently due to incomplete removal or to too shallow or too narrow an area of treatment, rather than to radioresistance of the tissue.

The Obstetrician's Responsibility in Infant Mortality

T. Floyd Bell, M.D., *Oakland*

SUMMARY

Although infant mortality has been remarkably reduced, stillbirth and neonatal death rates have been improved very little. Efforts at lowering the fetal death rate must be directed to those conditions affecting the fetus during labor or immediately afterward.

Prevention of premature labor and better care of the premature infant during labor and the neonatal period offer hope of a greater salvage of premature infants. Proper environment and trained personnel are necessary.

Spontaneous delivery is safest for the infant. Difficult operative procedures are associated with a high incidence of birth trauma, asphyxia and death.

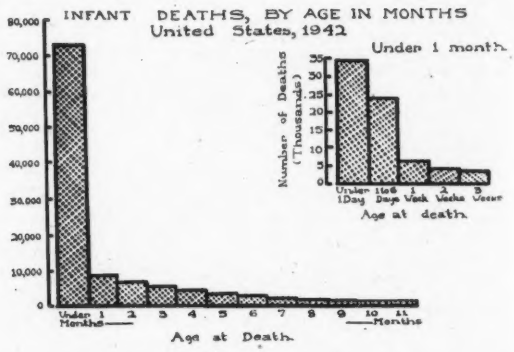
Since asphyxia is one of the chief causes of infant death, prevention, diagnosis and treatment of it are most important. Administration of oxygen to mildly asphyxiated infants before the injury has become irreversible may help to prevent late manifestations of anopia.

DURING the past decade, statistics from the United States Bureau of the Census have shown considerable improvement in maternal and infant mortality, although less as to infants than mothers. Between 1933 and 1943 the maternal mortality declined 60 per cent.[4] During the same period deaths of infants (under 1 year of age) decreased from 58.1 per 1,000 live births, to 40.4, a decrease of 31 per cent. This was further reduced to 38.3 in 1945[13]—quite a contrast to a rate of 99.9 in 1915. This gratifying picture can be further improved.

The reduction in infant mortality has not been equal in all age groups. This is shown in the accompanying graph of statistics for the year 1942. The rates of decline vary inversely with the age, the greatest number of deaths occurring during the first month of life, and most of these in the first day.

In 1943, 60 per cent of the infant deaths were due to prenatal or natal causes; in 1944, 61 per cent. Neonatal mortality was regarded as perhaps the most important subject discussed at the recent International Congress in Dublin, indicating the importance of fetal mortality.[14]

Presented as Chairman's Address before the Section on Obstetrics and Gynecology at the 77th Annual Session of the California Medical Association, San Francisco, April 11-14, 1948.



Prematurity is by far the leading cause of infant mortality.[4] In 1944, 30 per cent of infant deaths in the United States were ascribed to premature births; in 1943, 29 per cent. Premature birth, congenital malformations, birth trauma and congenital debility are the more outstanding prenatal and natal causes accounting for 54 per cent of all infant deaths in 1944 and 53 per cent in 1943. Although there is considerable difference in infant mortality among races, that feature will not enter into this discussion.

To improve the present mortality rate our efforts and attention must first be directed to saving those infants lost during the prenatal and neonatal period. Prenatal care, management of labor and delivery, and initiation of respiration immediately after birth are all important factors in life for the full term as well as for the premature infant. The responsibility for this early care must be assumed by the obstetrician. Beck[1] in his study of infant mortality has emphasized the obstetrician's responsibility for the hazards of the first few days of life.

In premature infants the vital organs are insufficiently developed to carry on the functions necessary to maintain life. Increased efforts must be made to give prematures careful and intelligent attention after delivery. The best environment possible must be supplied under adequate supervision by specially trained personnel.

Increased efforts must be made to prevent premature delivery. Mauzey[7] reports the probable causes of prematurity were chiefly eclamptogenic toxemia, premature detachment of the placenta, syphilis, multiple pregnancy, habitual abortion, placenta previa, nephritic toxemia, heart disease and pyelitis. More complete prenatal care and institution of proper treatment offer hope of greater fetal salvage in these as well as other causes of premature delivery. The induction of labor and cesarean sec-

tion for nonmedical reasons, except in definitely mature infants, should be discouraged. Whenever feasible, maternal complications of the prenatal period, which are associated with a high incidence of premature labor, should be treated conservatively as long as the delay does not create a serious hazard to the mother.

Since the premature infant is more susceptible to injury than the full term infant, oxytocic substances should be avoided in order to prevent rapid and precipitate labor. The membranes should be preserved until full dilatation of the cervix occurs. Heavy sedation is to be avoided in premature labor. Immediately after delivery the respiratory passages must be cleared by aspiration and energetic efforts made to start the infant breathing at once. The most common causes of death during the neonatal period, among both premature and full term infants, are pulmonary lesions such as atelectasis, massive aspiration and pneumonia. While some cells from the amniotic fluid are to be found in the respiratory passages without significance, aspiration of large amounts of amniotic fluid may occur before delivery and produce very distinct symptoms. Labate[5] found in his series that aspiration of foodstuff was a common cause of pneumonia. This is a preventable cause of death and can be greatly reduced by proper care and properly trained attendants.

Birth injury stands high as a cause of fetal death. The premature infant is especially liable to injury. Because of the possibility of trauma, delivery by high forceps and other difficult means carries a heavy risk for the infant. Even in cesarean section there is risk of fatal injury of the infant. The lowest rate of infant loss is in those delivered spontaneously. Deaths due to birth injury are reported to have accounted for 9.2 per cent of all deaths of infants in the United States for 1944. D'Esopo and Marchetti[2] in their study ascribed 11.5 per cent to this cause, while Potter and Adair[8] reported 13 per cent. Rapid expulsive contractions with a short labor predispose to trauma, particularly in prematures, even though the actual delivery be spontaneous.

PROLONGED LABOR INCREASES DEATHS

It is generally known that the infant death rate is directly proportional to the length of labor. D'Esopo and Marchetti[2] found that in labors over 30 hours the fetal death rate was doubled. In any prolonged labor consultation is advisable unless delivery seems close at hand.

Asphyxia, or anoxia, is often given as the cause of death. Hypoxemia[11] and transnatal asphyxia and anoxia[6] are other terms that have been used to describe this condition. Anoxia may be related to a number of factors such as birth trauma, cord complications, premature separation of the placenta, heavy sedation and anesthesia. D'Esopo and Marchetti[2] found in nearly 20 per cent of their cases that infant deaths were ascribed to asphyxia; Potter and Adair[8] reported 28 per cent. Many of such deaths occur before or during delivery, resulting in stillbirths. The deaths are rarely due to diseases which are intrinsic in the fetus. Interference with intra-uterine circulation caused by prolapse of the cord or tight cord about the neck of the fetus is responsible for asphyxia in many cases. Intrapartum bleeding from premature detachment of the placenta, or from placenta previa, may interfere sufficiently with the oxygen exchange to produce death from asphyxia. A less acute condition such as the so-called infarcted placenta may cut down the nourishment as well as the oxygen supply to the fetus, resulting in a poorly nourished anoxic infant which may be lost immediately or not survive the neonatal period.

In cases of anoxia the unwise use of anesthetics or sedatives may produce additional risk to the already distressed infant. These agents have little effect until after delivery, when they act as respiratory depressants, especially in the premature.

EFFECT OF ANOXIA ON CHILD DEVELOPMENT

Even though the immediate danger to the infant from anoxia may have passed, the more remote and late effects of such a state of oxygen want may produce serious handicaps to the child. Many authors have brought this to attention. The experimental work of Windle[12] on animal fetuses subjected to low oxygen tension is most convincing. His motion pictures of such animals showed poorly coordinated movements and symptoms of damage to the higher nerve centers. Autopsy disclosed varying degrees of damage to the central nervous system, depending on the degree of anoxia. Several workers have demonstrated what are probably the late effects of low oxygen tensions on children suffering from difficult psychological problems. Preston[9] studied the effect of anoxia on the subsequent behavior of children. More than one-fourth were of subnormal intelligence. Arrest of physical, mental, nervous, emotional and personality development occurred throughout the series. Faber has also emphasized this point. Schreiber[10] had already shown the relationship between asphyxia and mental disease. These changes represent permanent damage to the central nervous cells as a result of oxygen want. A deficiency of oxygen for more than a few minutes results in irreparable damage to the nerve cells.

The diagnosis of asphyxia in the newborn offers no problem after delivery. Before delivery, a fetal pulse rate 30 or 40 beats slower than the previous basic rate is evidence of real fetal distress. This is the only reliable sign of impending danger to the fetus. Attempts at forcible delivery at this time only add to the danger of trauma and more anoxia. Administration of oxygen to the mother is an effective means of supplying oxygen to the asphyxiated fetus. In the individual case, if no improvement is noticed after a few minutes, one may assume this method is of no value.

Many observers have emphasized the importance in caring for the newborn in a state of asphyxia.

The older methods of slapping, swinging, hot and cold tubbing, are obsolete and have no place in modern methods of resuscitation. The first essential is an open and free respiratory tract. Oxygen must reach the alveoli of the infant's lungs. Even in partial or mild degrees of asphyxia, the administration of oxygen will prevent permanent damage to the nerve cells, unless the damage is sufficient to be irreversible. It is important to supply oxygen until the child has good color, breathes well and seems normal. Body heat must be maintained, especially in prematures.

Even though the pediatrician ultimately takes care of the newborn, proper nutrition and hygiene of the mother during the prenatal period, expert management of labor and delivery, and the institution of well established respiration are responsibilities of the obstetrician. He must deliver the infant to the pediatrician in the best condition possible.

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REFERENCES

1. Beck, A. C.: Obstetrician's responsibility for the hazards of the first few days of life with special reference to anoxia and prematurity, Am. J. O. & G., 51:173-183 (Feb.), 1946.

2. D'Esopo, D. A., and Marchetti, A. A.: Causes of fetal and neonatal mortality, Am. J. O. & G., 44:1-22 (July), 1942.

3. Dunham, E. C.: Deaths of premature infants in the United States, U. S. Children's Bureau Stat., Series No. 2.

4. Gooch, M.: Ten years of progress in reducing maternal and infant mortality, Child, 10:77-83 (Nov.), 1945.

5. Labate, J. S.: A study of the causes of fetal and neonatal mortality on the obstetric service of Bellevue Hospital. Am. Jr. O. & G., 54:188-199, 1947.

6. Lund, C. J.: Transnatal asphyxia and anoxia, West. J. Surg., 50:575-578 (Nov.), 1942.

7. Mauzey, A. J.: Obstetric factors in premature birth, Am. J. O. & G., 39:295-301 (Feb.), 1940.

8. Potter, E. L., and Adair, F. L.: Clinical-pathologic study of the infant and fetal mortality for a ten-year period at the Chicago Lying-In Hospital, Am. J. O. & G., 45:1054-1065 (June), 1943.

9. Preston, M. I.: Late behavioral aspects found in cases of prenatal, natal and postnatal anoxia, J. Pediat., 26:353-366 (April), 1945.

10. Schreiber, F.: Mental deficiency from prenatal asphyxia, Proc. Am. A. Ment. Deficiency, 63:95-106, 1939.

11. Traut, H. F.: Hypoxemia of the fetus, West. J. Surg., 54:379-383 (Oct.), 1946.

12. Windle, W. F., and Becker, R. F.: Asphyxia neonatorum, Am. J. O. & G., 45:183-199 (Feb.), 1943.

13. Infant mortality, J.A.M.A., 136-492 (Feb. 14), 1948.

14. The International Congress, Rotunda Bicentenary, Lancet, 2:105, 1947.

Persistent Self-Mutilation Following Surgical Procedures

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SUMMARY

Conscious and unconscious need for continued punishment may complicate the postoperative course of surgical procedures if the patient seeks to satisfy that need by preventing the healing of the operative wound. Recognition of the underlying emotional factors is difficult, and often delay leads to chronic states of invalidism with its attendant social and economic loss.

ACTUAL or threatened self-mutilation often accounts for admission of patients into a hospital. From the viewpoint of the surgeon, the care of these patients involves no immediate technical problems other than the speedy repair of injured structures, or perhaps that intervention made necessary by more extensive internal hemorrhage. Postoperatively, the emotional reactions of these patients undergo striking changes. From the original attitude of profound depression, tension and remorse, they emerge with a light-heartedness and a gratefulness of living that is in sharp contrast to their former state of dejection. It would appear from even the most superficial questioning that the pain and inconvenience suffered were in payment of a hostile and aggressive thought or act. The diagnosis of reactive depression in a hysterical personality is therefore appended to a patient's chart to satisfy the demands of the statistical record. In no manner does such a diagnosis give an inkling as to the dynamics underlying the real motives for mutilation or attempted suicide. Menninger[4] discusses self-mutilation as focal or partial suicide and has forcefully demonstrated that the psychological motives and implications attending total self-destruction are operative in most, if not all, instances of self-mutilation.

Self-mutilation, as well as self-flagellation, serves both conscious motives and unconscious demands. On the one hand, it permits the display of aggressive tendencies and on the other hand serves as an immediate source of self-punishment and reproach. In the field of dermatology where neurotic excoriations or self-induced eruptions make up a considerable portion of practice, this dual function has been recognized for some time. Netherton[6] and, more recently, Michelson[5] and Lynch[1] have assigned as motivation for these conditions repressed internally directed rage and resentment. These authors describe two types of patients: (1) those having preexisting dermatoses who, out of habit, continuously aggravate the lesion, and (2) those who, for unconsciously determined reasons, mislead the dermatologist in his efforts and thereby prolong their pain, suffering and disfigurement. Viewed critically, this is a most equivocal separation of entities which basically have in common pain and disfigurement.

Analogies can be made between self-induced skin excoriations and scars incurred by surgical operations. However, one obvious exception is that the latter is attained with the aid of a second person; namely, the surgeon. The surgeon becomes the punitive agent who may be employed repeatedly for multiple surgical procedures in order to satisfy an almost boundless masochistic drive. These masochistic drives frequently stem from early childhood, and their source is likely to be found in the interpersonal relationships within the family constellation. Rather consistently, the parents of these patients are strict, uncompromising and punitive, and give little if any real affection. In consequence, attention or sympathetic understanding is achieved through illness or by seeking out a role for which punishment and pain are the price.

What precisely incites self-mutilation in a postoperative course is not known, but many immediate factors are assumed to be involved. One hesitates to guess as to the predictability of self-mutilation preoperatively, for even in most striking instances it is difficult enough to recognize the mutilation postoperatively. In our case material it was noted that frequent surgical experiences associated with stormy, prolonged postoperative courses suggested the hysterical type of personality with its need for masochistic satisfaction. We cannot answer with any satisfaction or accuracy why one patient had multiple operations with periods of comparative well-being, and the other undertook self-mutilation following an indicated procedure. In each of our cases the cost of hospitalization was catastrophic, and for the families involved the experience proved to be a strain emotionally and financially.

In the cases cited it is indeed difficult to distinguish which elements were consciously determined and which were attributable to unconscious material. One can be reasonably sure that in almost every neurotic reaction there is some secondary gain to the illness, and an element of malingering is therefore present. However, as pointed out by Menninger, malingering has a characteristic feature which sets it apart from other forms of self-mutilation; namely, striking directness of its aggressive purpose. He states

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Presented before the Section on Neuropsychiatry at the 77th Annual Session of the California Medical Association, San Francisco, April 11-14, 1948.

further that in order to utilize the secondary gain of the illness the patient will be uncooperative with the physician whose efforts are primarily directed toward his recovery. The patient then is caught between two opposing forces that operate to his mental disadvantage and to the discomfiture of the physician.

It is hardly of academic value, then, to try to distinguish malingering from a hysterical reaction, and basically both should be considered interaction between aggression and punishment.

CASE REPORTS

CASE 1. A 21-year-old female, a graduate student in bacteriology, first entered the University of California Hospital on April 2, 1937. One week before entry the patient had had a Schick test on the volar aspect of the right arm which was followed by a moderate reaction. Two days before entry she noticed that the area had become markedly reddened and painful and there were associated chills and fever. These symptoms persisted until the patient entered the hospital.

On admission, the temperature was 38.5° C., pulse rate was 100. Examination of the right arm showed a crusted central area about 1 cm. in diameter surrounded by an area of cellulitis. There was early abscess formation measuring about 8 cm. in diameter. Two days after hospitalization an incision was made and a small amount of pus and necrotic tissue removed from which hemolytic staphylococcus aureus was cultured. The patient was discharged from the hospital, improved, four days after admission.

Nine days later the patient again entered the hospital because of recurrence of the cellulitis on the right arm. On entry, the temperature was 37.5° C. There were no signs of toxicity. Despite the usual therapy the area of cellulitis increased and the patient developed a septic fever, ranging as high as 41.4° C. at the end of the first week. The area of cellulitis became indurated and localized to an area about 6 cm. in diameter. The fever persisted, however, and repeated examinations revealed no additional findings. The patient had occasional chills followed by an elevation in temperature and she continued to complain of severe headache and photophobia. Examination revealed a mild stiffness of the neck with accentuated deep reflexes equal on both sides. An atypical Babinski reflex was present on the left. The leukocyte count fluctuated from 4,500 to 13,500 with only slight increase in polymorphonuclear cells. A lumbar puncture showed a pressure of from 230 to 300 mm. of water, but the cell count, globulin, colloidal gold and Wassermann reactions were all normal. Spinal fluid sugar content was within normal limits. Repeated blood cultures showed no growth. A diagnosis of acute encephalitis was strongly considered but never proven. After being in the hospital for approximately three weeks, the patient became afebrile and was discharged entirely recovered.

The patient reentered the hospital for the third time five months later. She stated that she had accidentally cut the dorsal surface of her right forearm with a mirror which broke in her hands. The wound, which was about 5 cm. in length, had been sutured at the emergency hospital. On inspection several pieces of glass were palpated under the skin. The wound was opened and the spicules of glass were removed. Forty-eight hours later additional spicules of glass were removed. The patient developed acute cellulitis around the wound and because it was thought from her past history that she had increased susceptibility to infection, she was kept in the hospital for precautionary measures. The day before intended discharge from the hospital the patient's temperature rose to 39° C. and the pulse rate to 120, although the mild inflammatory reaction had subsided. There was crepitation about the wound extending up the forearm and the midportion of the upper arm. Smears were taken and, although no Welch's bacilli were seen, a diagnosis of anaerobic infection was made. Incisions were made into the forearm and upper arm and subsequently irrigated with Dakin's solution. Anaerobic antiserum was administered intravenously. Two weeks after the incisions were made, secondary closure was accomplished. This healed without difficulty and approximately one month after entry the patient was discharged.

She was seen again three days after discharge because of marked trismus of the jaw, stiffness of the neck and rigidity of muscles of the arms, legs and back. Motions of the neck were notably limited. A noticeable bilateral Kernig sign was demonstrated and the deep reflexes were hyperactive. There was no clonus or Babinski sign. There were definite signs of meningismus in addition to the hypertonicity of the muscles and trismus suggesting tetanus. The spinal fluid showed normal pressure; the Pandy test, cell count and gold curve were within normal limits. However, the patient was treated for tetanus. She left the hospital on the eleventh day considerably improved.

Two weeks after discharge the patient entered the hospital for the fourth time because of acute cellulitis of the right forearm and axilla. There was a tender area in the right axilla which was abscessed. On draining the abscess a spicule of glass was found in the cavity. The area of cellulitis in the forearm did not improve but seemed to remain stationary. Nine days after entry the patient had a chill and her temperature rose to 40.4° C. With the use of the usual measures, the temperature finally dropped and the patient was afebrile for about ten days. She was discharged five weeks after entry.

She returned to the hospital for her fifth entry about six weeks later, stating that the day before entry she had developed red blotches over the chest, arms and legs, and had had fever and chills. The temperature on admission was 37.6° C. There were erythematous areas over the chest, upper and lower extremities, and subcutaneous emphysema was discernible in the involved region. The patient became afebrile within 48 hours and although she had had a bout of severe enteritis for several days associated with nausea and vomiting, she was discharged from the hospital ten days after entry. The symptoms had completely disappeared within three or four days.

It was during this last entry that it was possible for the first time to break down the patient's psychological resistance. (Unsuccessful attempts had been made during previous hospital admissions.) The patient confessed that one day, while sitting at her desk in high school, she yawned and extended her arm and accidentally touched a hot steam radiator with the back of her wrist. She involuntarily withdrew her arm, but because she experienced such a pleasant sensation, she immediately placed her wrist on the radiator again. The patient also stated that during a course of anatomy she intentionally incised the back of her right wrist on two occasions because of the pleasant sensation experienced. Thereafter, whenever cellulitis subsided she would cause recurrence by vigorously massaging it. Very often this was followed by a chill and marked hyperpyrexia. She mentioned that some of the symptoms which suggested encephalitis were actually voluntarily produced and added that when she did not have fever she placed the thermometer in warm water. The laceration on the right forearm supposedly produced by a broken mirror was made deliberately with a scalpel, and after the wound had been sutured she

had pushed the spicules of glass under the skin. When the wound was opened and the spicules removed, she had kept the spicules as "souvenirs" and later reinserted them into the subcutaneous fat. She later milked three of these spicules up into the axilla from the forearm and wrist and received the same gratifying pleasurable sensation.

The episode in which crepitation was found in the forearm and upper arm was produced by injecting air under the skin with a luer syringe; the temperature reading was produced by dipping the thermometer in warm water. When the entire upper extremity was opened widely on the suspicion of gas bacillus infection, she was rather gratified and claimed that even the dressings (which would ordinarily be painful to someone else) were a pleasant experience to her. She explained the episode of "tetanus" by stating that she actually thought she was developing tetanus, and in order to make sure she would be treated thoroughly, produced all the signs and symptoms of tetanus.

During the last hospital admission the patient claimed that she rubbed sandpaper over her skin and injected air underneath the skin in order to simulate a gas bacillus infection. At the same time she swallowed a boxful of sulfonamide tablets in an attempt to commit suicide, thinking she would be "signed out" as having a gas bacillus infection which would not carry stigma or disgrace to her family. Because this suicide attempt was not successful, she drank a bottle of rubbing alcohol when the nurse's back was turned and produced the violent gastroenteritis bout.

CASE 2

CASE 2. A 33-year-old, white, single female, a medical secretary and technician, was admitted to the University of California Hospital on November 15, 1945. Six months prior to entry she had had the left long saphenous vein ligated. Shortly thereafter infection and ulceration appeared in the groin at the site of operation. The ulcer spread rapidly in spite of the usual treatment and soon involved the entire anterior abdominal wall. In the course of 11 months, the patient had multiple surgical procedures (excision of undermined areas and skin grafts) and had received local and parenteral penicillin, streptomycin, activated zinc peroxide, Dakin's solution, furacin, and other medication. Undermining tunnels would develop with regularity under the skin edges. At no time did bacteriological studies reveal the symbiotic organisms diagnostic of phagedenic ulcer or the microaerophilic streptococci seen in chronic undermining ulcer as described by Meleney.[2, 3]

Because of increasing irritability, unmanageable behavior and threat of suicide, the patient was transferred to the psychiatric ward of the San Francisco Hospital. Investigation revealed a forceful, aggressive, and opinionated woman who had been "on her own" since the age of 15. Her father, a kind and affectionate person, was accidentally killed when she was five years of age. Her mother, burdened with five children, had had little time for "affection but saw to it that we ate." As long as she could remember, she had been "attached" to her only brother, five years her senior, and it was quite clear that he acted the role of the father. All her life she had resented her younger sister because of the latter's attractiveness, social success and marriage. The sister was the favorite in the family, and by contrast our patient "had to fight for acceptance and approval." The patient was particularly conscious of her obesity. Her weight between the ages of 15 and 30 years ranged between 250 and 325 pounds.

The patient left her home at the age of 15 and worked as a domestic in the household of physicians. With encouragement, she took courses in medical secretarial work and, in addition, studied to be a surgical technician. She had always been "interested in anatomy" since an appendectomy at 16 years of age, and her interest was enhanced further by four separate operations for the removal of glass particles from the palm of her right hand. These episodes were incurred "accidentally" during chemistry experiments. She had had virus pneumonia in November, 1943, and during convalescence had developed hysterical aphonia which cleared in three weeks' time. In the following spring she had lobar pneumonia and again was aphonic. She had aphonia for the third time in June, 1945, when she was hospitalized.

In her personality makeup she tended to be shy and sensitive. Meeting people was "painful" and she felt that her relationships with people were handicapped by her obesity. She always tried to do more than was expected of her so that she would be placed in a position of responsibility. She had been dependent upon others only to the extent of requiring recognition for her work, and was otherwise independent. The patient revolted against being powerless due to hospitalization, and was most annoyed at not being given a voice in the administration of her treatment.

The impression of the psychiatric staff was that the patient had a hysterical character with strong masochistic drives. As she was not psychotic, she was referred to the surgical ward of the San Francisco Hospital.

Although she was under continuous observation, the hemorrhages from the ulcerations were so severe that repeated transfusions of whole blood were necessary to correct the anemia which developed. Because there was no improvement, on July 17, 1947, the patient was placed in a single hip spica cast extending from the shoulders to the lower leg. When the cast was removed on August 19, 1947, all areas of former ulceration were filled with granulation tissue or covered by epithelium, except for a small area 2 inches away from the cast in the right lower quadrant which could have been traumatized by the patient's movements. A second body cast was applied which gave even greater restraint. The patient reacted to this with violent verbal abuse, threats of suicide, and outbursts against the physician and nursing staff. The threats of suicide were frequent and were followed by periods of great remorse and contrition. On many occasions the patient was observed in an attempt to reach and irritate the ulcer with tongue blades or any other instrument available. The patient was discharged from the hospital fully recovered from the self-inflicted ulcerations. Psychiatrically, she continued to the end to defy everyone in the most obscene terms and at no time did she acknowledge her role in the affair.

DISCUSSION

When self-mutilation is considered in the broader sense, as proposed by Menninger, to include multiple operations and purposive accidents, then some consideration must be exercised by the surgeon in choosing his operative material. Apparently the only significant index is a history of emotional disturbances, but the frequency of these makes the problem even more complex. Again, the surgeon himself hardly has a choice in the matter when he is confronted by a problem which, in his best judgment, requires surgical intervention. The surgeon is accustomed by his training to give relief from suffering, and it is entirely foreign to him even to imagine that the patient might mislead him for the sake of the pain needed psychologically. This deception on the part of the patient accounts for the hostility and resentment that the surgeon then turns upon the patient.

The patients in whom self-mutilation occur are notoriously cunning and secretive, and in the two cases cited the factual psychological material was elicited many months after the initial surgical procedure. The dermatologist, on the other hand, is keen to recognize in the original examination evidence of self-mutilation and his immediate treatment is based on those findings. The surgeon and the psychiatrist should strive to attain that degree of diagnostic acumen.

From the material presented one may assume that in addition to the fulfillment of aggressive drives, and the need for self-punishment, a measure of erotic satisfaction was likewise obtained. This fact was verbalized in the first case, and in the second case the physical movements and gyrations followed by relaxation were clearly suggestive. This interpretation was given but was vigorously denied by the patient.

REFERENCES

1. Lynch, F. W., Hinckley, R. G., and Cowan, D. W.: Psychosomatic studies in dermatology; psychobiologic studies of patients with atopic eczema (disseminated neurodermatitis), Arch. Dermat. and Syph., 51:251-260 (April), 1945.

2. Meleney, F.: Zinc peroxide in treatment of micro-aerophilic and anaerobic infections, with special reference to group of chronic ulcerative, burrowing, non-gangrenous lesions of abdominal wall apparently due to micro-aerophilic hemolytic streptococcus, Ann. Surg., 101:997 (April), 1935.

3. Meleney, F., and Johnson, B. A.: Further laboratory and clinical experiences in the treatment of chronic undermining burrowing ulcers with zinc peroxide, Surgery, 1:169 (Feb.), 1937.

4. Menninger, Karl A.: Man against himself, New York, Harcourt, Brace and Co., 1938.

5. Michelson, Henry E.: Psychosomatic studies in dermatology; motivation of self-induced eruptions, Arch. Dermat. and Syph., 51:245-250 (April), 1945.

6. Netherton, E. W.: Dermatitis artefacta with a report of seven cases, Ohio State M. J., 23:215-221 (March), 1927.

A Simplified Method of Making Color Photographs of Oral Lesions

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IN THE past teaching in the field of pharyngeal disease has been hampered by lack of good photographs in color. The occasional good color photograph obtained from the medical photographer was of little value because the average collection is not sufficiently extensive for comparison.

The otolaryngologist who wishes to record an interesting lesion will all too frequently let the material slip away because of the difficulty involved in meeting with the photographer and the patient, plus the indifferent results obtained and the expense involved.

Photography of the mouth, and particularly the posterior pharynx, presents certain peculiar difficulties. The depth of the oral cavity is such that a great depth of focus is needed in the finished picture for proper orientation. This in turn requires a source of light of high intensity as well as correct color temperature.

The frequent movements of the tongue and pharynx necessitate a very short exposure time. This makes ground glass focusing and manual light adjustment most difficult because of the movement which occurs between focusing and photographing. The necessary use of a tripod in these circumstances is cumbersome and time-consuming.

Most clinical photographers favor cameras with a 4-inch to 6-inch lens because of the adaptability to other types of work.

In oral photography a short focal length lens (2-inch) is of considerable advantage since, other factors being equal, a short focus lens will have a greater depth of field and wider angle of view.

This reduces the masking effect of the mouth (Figure 1).

An ideal technique for pharyngeal photography should embody the following factors: (1) High intensity, color-corrected light source originating as close to the camera lens as possible—that is, paraxial light; (2) maximum depth of focus; (3) short exposure time; (4) elimination of tedious finding and focusing; (5) elimination of manual light estimation and adjustment; (6) constant predictable results; (7) speed of operation; (8) portability.

Cameras which embody many or all of these features have been previously described,[1] and even marketed commercially. However, these are either individually constructed and correspondingly expensive or they require manual finding and focusing for each exposure.

A camera suitable for the purpose and considerably less expensive was made of a popular "candid" camera plus standard accessories with the addition of a lamp housing which was constructed from a metal can and bayonet base socket using pocket tools. At pre-war prices the completed unit involved an expenditure of approximately sixty dollars.

The camera employed is an Argus C-3, 35 mm. with a built-in flash synchronizer and a 2-inch lens. To this was added a ½-inch lens extension tube and mounting ring with two 7½-inch legs (Figure 2). These are part of the standard Argus Macro-kit. With this equipment the camera is in sharp focus two inches beyond the tips of the legs. The mounting ring is so designed that the tips of the legs represent the size and position of the right border of the camera field. Light source consisting of a No. 5 photoflash bulb was mounted in a metal can and attached to the camera on the left side of the lens. The amount of light from the flash bulb is limited by a 9/16-inch circular aperture in the front face of the lamp housing. The flash duration for a No. 5 bulb at one-half peak is approximately 1/75th of a second. This produces an exposure rapid enough to "stop" pharyngeal movements. The shutter synchronizer is set at 1/20th of a second so that the flash bulb determines the length of exposure. The iris diaphragm of the camera is set at the maximum of f:18. The film employed is either type A Kodachrome or Ansco tungsten.

In order to reduce the color temperature of the flash bulb from 3800 K to a value more suitable for this type of film, a chrome flash filter is attached ahead of the camera lens. This results in greatly improved color rendition for this type of work. The

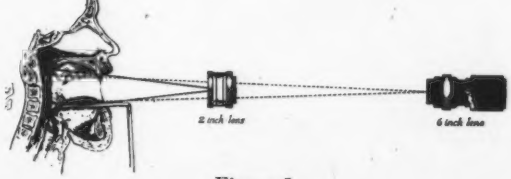

Figure 1

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Presented before a joint meeting of the sections on Dermatology and Syphilology and Eye, Ear, Nose and Throat at the 77th Annual Session of the California Medical Association, San Francisco, April 11-14, 1948.

use of a photoflash light source obviates troublesome line voltage variations or cumbersome voltage regulators.

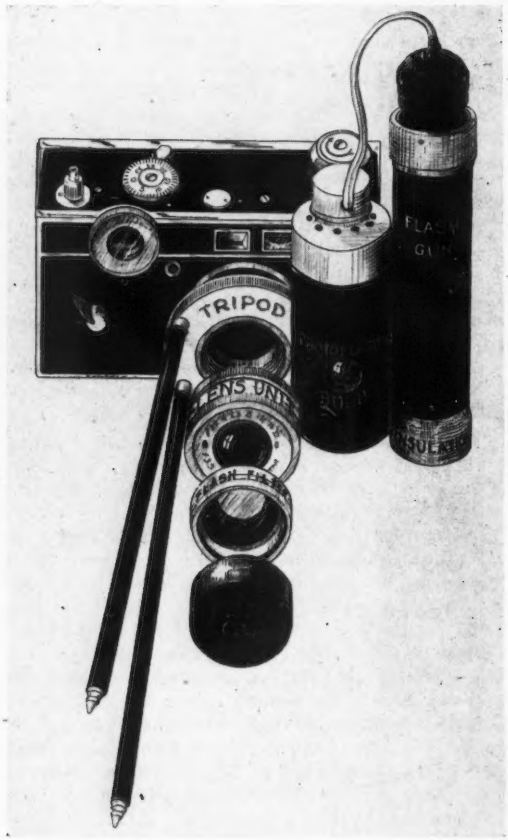


Figure 2

Exposure of the pharynx is facilitated by use of metal cheek retractors held by an assistant and a metal tongue blade held by the patient but placed by the photographer. The camera is then aligned by quickly placing the two legs against the patient's left cheek, raising it so that it is perpendicular to the mouth and releasing the shutter (Figure 3). With this technique exposure, distance, and field are all adjusted synchronously and accurately. With practice, three to five exposures can easily be made without removing the retractors or tongue blade from the patient's mouth.

The 35 mm. film was selected because of its inexpensiveness and for the additional advantage that four exposures may be mounted on the standard 3¼ x 4-inch lantern slide. This makes possible the simultaneous presentation of various combinations

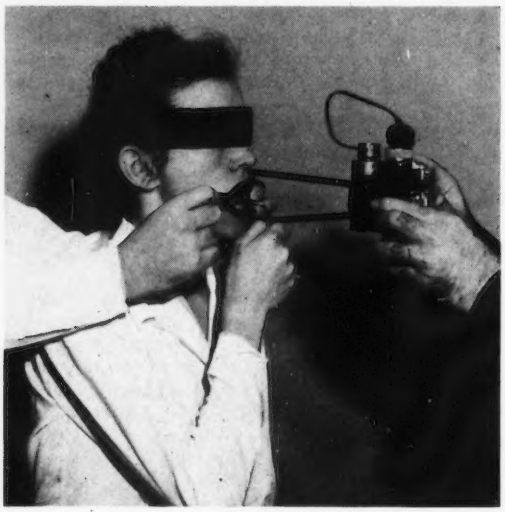
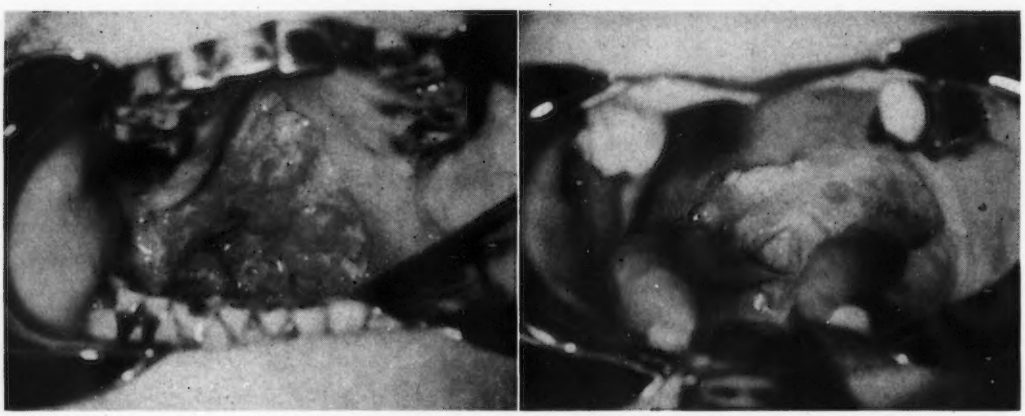


Figure 3



(Left) Black and white reproduction from the original 35 mm. Kodachrome transparency showing an extensive squamous carcinoma of the posterior pharynx. (Right) Black and white reproduction from the original 35 mm. Kodachrome transparency showing the characteristic stellate scarring following luetic pharyngitis.

—for example, the clinical and microscopic appearance of tumors, the appearance before and after treatment, or comparison of gross and microscopic phases of various lesions.

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REFERENCE

1. Holinger, Paul H.: Photography of the larynx, trachea, bronchi and esophagus, Trans. Am. Acad. Ophth. and Otolaryng. (Jan.-Feb.), 1942.

Discussion by J. WALTER WILSON, M.D., *Los Angeles*

Photographs are such excellent clinical records that any process or mechanical contrivance which makes it easier to obtain them should receive the most enthusiastic and widespread support. The clinician whose practice is limited to one area of the body is fortunate because it is within the realm of possibility to develop a mechanical camera in which the focal distance, area included, exposure time and light intensity are all fixed. In the present instance, however, this advantage is somewhat outweighed by the facts that the oral cavity is a difficult area to light and that such a depth of focus is required to keep the lips as well as the postpharyngeal wall sharply within focus.

Some years ago I had the opportunity of being an understudy of Dr. Donald Miller, a dentist of San Leandro, California, who has done what I believe to be the most beautiful motion picture photography in color of the mouth. The problem of lighting is a very real one in work of that type, since it must be maintained for several minutes continuously. This has been overcome by Dr. Sooy in the present instance by the use of the flash bulb, adaptable, of course, to still pictures only. We were never able to obtain satisfactory results with a single light source; some part of the oral cavity seemed always to be shadowed. Two lights, neither in the same vertical or horizontal plane, were much more suitable. The use of two flash bulbs incorporated into Dr. Sooy's camera might be worth trying.

We also found that shiny, chrome plated retractors gave too much extraneous light by reflection and resulted in objectionable high-lights. This was obviated by using retractors made of methyl methacrylate (Lucite). Their transparency also resulted in a much more beautiful picture, in our opinion, seeming to possess less artificiality.

Finally, I should like to point out that under certain limitations light may be guided around corners and for considerable distance by methyl methacrylate without loss in intensity as long as the critical angle is not exceeded, emerging only where the usual polished mirror-like surface is destroyed by roughening or sandblasting. The use of retractors properly constructed of this substance might allow light sources that otherwise would be uncomfortably hot for the patient, to be used at a distance. Intense light then could be guided into the oral cavity from all sides, without accompanying heat.

Roentgen Therapy of Rheumatoid Spondylitis

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SUMMARY

Based on the pathological processes involved in rheumatoid spondylitis, comparison is made between the physical qualities of certain techniques of roentgen therapy. Graphic representation of the isodose curves and the homogeneous distribution of radiation pertaining to the method herein advocated is shown.

Results obtained in the treatment of 125 cases illustrative of the evolution of technique experienced at the University of California Hospital are tabulated. The indications, contraindications, and complications of the method are discussed.

Practically every patient with rheumatoid spondylitis, regardless of the stage of the disease, was benefited, with the best results having been obtained when the radiation was given in three courses, separated by rest periods, and homogeneously distributed along the spine.

FIFTY years have passed since x-rays were first used in the treatment of spondylarthritis, for the reports by Stenbeck and by Sokolow appeared in the foreign literature in 1898, only three years after Roentgen's discovery of the rays. Anders, Daland and Pfahler[1] (1906) are credited with the first report in this country.

Since then, and especially following the stimulus generated by Smyth, Freyberg and Lampe[9] in 1941, the use of roentgen irradiation in combatting rheumatoid spondylitis has become widespread. Numerous variations in physical factors and treatment techniques have been used, all apparently with fairly good results.

This discussion is concerned with the technique evolved and the experience gained in the treatment of patients referred to the therapy section of the department of radiology at the University of California Hospital between 1942 and 1948. Most of the patients came from the arthritis clinic, where the diagnosis was established after complete preliminary study by the arthritis committee. Some patients referred by private physicians are also included in the analysis.

It is not the purpose of this report to enter the argument concerning etiology, or whether rheumatoid spondylitis and rheumatoid arthritis are manifestations of the same or different disease entities. Similarly the well established clinical and roentgen criteria for diagnosis will not be reviewed. However, it should be mentioned that the high incidence of peripheral joint involvement noted in this group appears to be more than mere coincidence, and suggests that stronger consideration should be given to the concept of a systemic disease affecting either the joints of the spinal axis, or the peripheral joints, or both.

Because of the difficulty in obtaining material for microscopic study, the actual changes which occur within the affected joints have not been unequivocally established except in advanced cases of long duration that came to autopsy for other reasons. However, the disease has been classified by the American Rheumatism Association in the category "Probably Infectious (Etiology Not Known)," in which are also included rheumatic fever, rheumatoid arthritis and Still's disease. Steinberg[10] and Angevine[2] are in essential agreement with regard to the pathological findings, and have clarified the situation to some extent. The joints involved contain synovial membrane and articular cartilage. The initial response to the disease has been noted as synovial inflammation and edema, with thickening and infiltration of the subsynovial tissues by lymphocytes, monocytes, and plasma cells. Fibrinoid material, sometimes several layers thick, deposits over the surface of the synovial lining. Apparently, the next phase of the process is the proliferation of fibrous connective tissue in the region of the perichondrium, forming a vascular granulation tissue pannus which spreads over the surface of the articular cartilage, resulting in disturbed nutrition of the cartilage and consequent disintegration of it. Because of its close approximation the pannus tends to fuse with that covering the opposing cartilage, and in the subsequent attempt at repair, fibrous ankylosis and even bony fusion becomes the end result. It is apparent, therefore, that the disease is a chronic mesenchymal inflammatory disorder of the reticuloendothelial system.

In the attempt to control the crippling effects of the disease, a variety of techniques of x-ray therapy using beams of diverse physical qualities has been

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Presented before the Section on Radiology at the 77th Annual Session of the California Medical Association, San Francisco, April 11-14, 1948.

The cooperation and assistance given by the physicians who permitted access to their private records is gratefully acknowledged.

utilized. Of these, the method known as "wide-field" technique, devised by Scott,[8] has gained considerable prominence and numerous advocates both here and abroad.

Using x-rays generated by 130-140 kv, with 3 mm. aluminum added filtration, or 100 kv with 1 mm. aluminum added filtration, Scott initially covered the whole trunk in two overlapping fields approximately 30 centimeters in diameter. Later, with the use of a specially designed wide angle tube, covering a diameter of approximately 54 centimeters at a tube-skin distance of 40 cm., he irradiated the entire torso in a single field, delivering 60-100 r (air) at the center of the field.

He stated that uniform distribution of radiation over the field was not essential, but instead attempted to endow the patient with a generalized or "constitutional stimulating effect" or "state," which he called "saturation."

It is not within the province of this presentation to discuss whether or not roentgen irradiation, of either long or short wave length, has a stimulating effect. However, confirmation of the lack of uniformity of absorption in the field of treatment is easily established, by reference to isodose charts. The authors have been unable to find such graphs for the "wide-angle" tube, but curves applicable to the beam used by the advocates of the so-called "modified Scott wide-field technique" are available (Figure 1).

The joints of the spine with which we are concerned lie at an approximate depth of 6 to 7 centimeters from the overlying skin surface. The differential of absorption between the center and the periphery of the field, at this level, is readily appreciated. An even greater gradient would be expected with the single large field.

In contradistinction to the method just described, McWhirter[6] treats locally to the area of the sacro-iliac joints and the lumbar spine, using long narrow fields, and utilizes the considerably harder radiation generated with 250 kv and 1 mm. steel (inherent) filtration, giving daily treatment to a total of 2,500 r (skin). On occasion, he treats the entire length of the spine with similar dosage. Pohle and Morton[7] also use beams of shorter wave length, generated by 200 kv, or 400 kv, with half-value layers of 1.05 mm. copper and 2.4 mm. copper, respectively, and treat three elongated areas to a total of 450-600 r (air) in three to six days. Similar factors are advocated by Hemphill[5] and Reeves, and by Baker.[3]

Except for Freyberg and his associates, the courses of treatment were repeated only upon recurrence of symptoms. Freyberg now advocates repetition of the course of treatment three times, at four to six week intervals, but in his last report[4] states that fewer complications develop if rays of longer wave length, generated by 140 kv, are used.

TECHNIQUE

The method of treatment at the University of California Hospital has undergone a process of gradual evolution since its inception during the latter part of 1941. At first, treatment was directed locally to painful areas only, usually the region of the lumbar spine and sacro-iliac joints. Later, using moderately elongated fields, the thoracic spine was included. Courses of treatment were repeated only upon recurrence of symptoms.

The use of relatively small fields extending along the entire spinal axis has been practiced since 1944. In people of average length, four portals are placed longitudinally along the vertebral column, with a single field placed horizontally to cover the sacro-

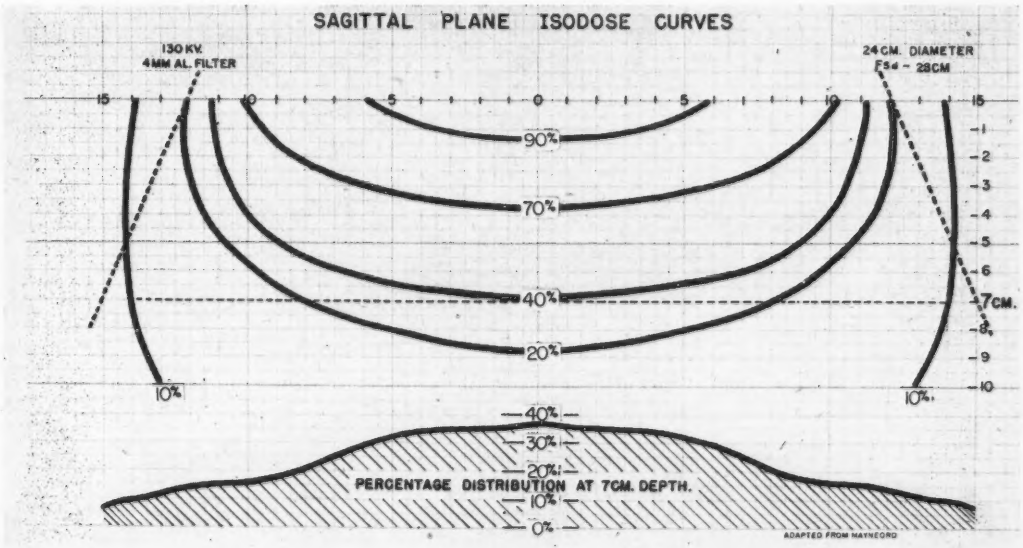

Figure 1

iliac joints. The most superior field measures 10 x 10 cm., and the others are 10 x 15 cm. In shorter people, the spine is easily covered by three 10 x 15 cm. portals placed longitudinally, the sacro-iliac port being transversely situated as before. The fields are delineated by an indelible skin-marking ink, so that the treatment cone may be identically placed each time. This inked boundary of adjacent portals results in separation of the fields by 5 to 7 millimeters.

Using x-rays generated by 200 kv constant potential, HVL 1.05 mm. copper, 50 cm. target-skin distance, and an output of approximately 45 r per minute, 200 r (air) are delivered to the upper and lower halves of the vertebral column and paraspinal musculature on alternate days, for a total of 600 r (air) per field. Isodose curves illustrative of these factors are indicated in Figure 2.

For treatment of a chronic inflammatory lesion on the surface, it is desired to deliver 75 to 150 r to the process at each treatment. For surface lesions, beams of "softer" quality are adequate, but in order to deliver the same dose at the depth with which we are concerned, it is felt that a beam of the quality described is more appropriate. The 200 r (air) is equal to 263 skin roentgens on the 100 square centimeter field, and 273 skin roentgens on the 150 square centimeter fields. At the average depth of 7 centimeters, the calculated tissue dose therefore is 121 r and 134 r respectively.

Graphic illustration of the resultant distribution of the radiation, as shown by sagittal plane isodose curves superimposed along the spine, corresponding to the portals of the incident beam, are shown in Figure 3.

That this accomplishes homogeneous irradiation in the region of the apophyseal and sacro-iliac joints of the spine is indicated in Figure 4, which represents the percentage depth dose in the sagittal plane, at a depth of 7 centimeters from the skin surface. The small peaks or "hot spots" caused by the over-

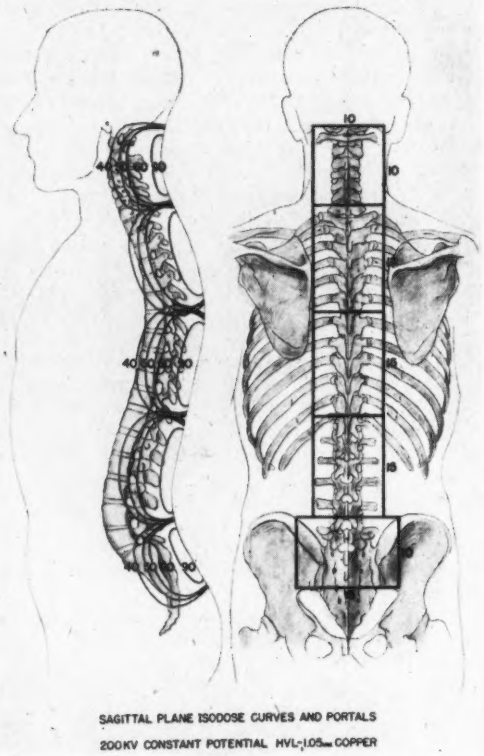

Figure 3

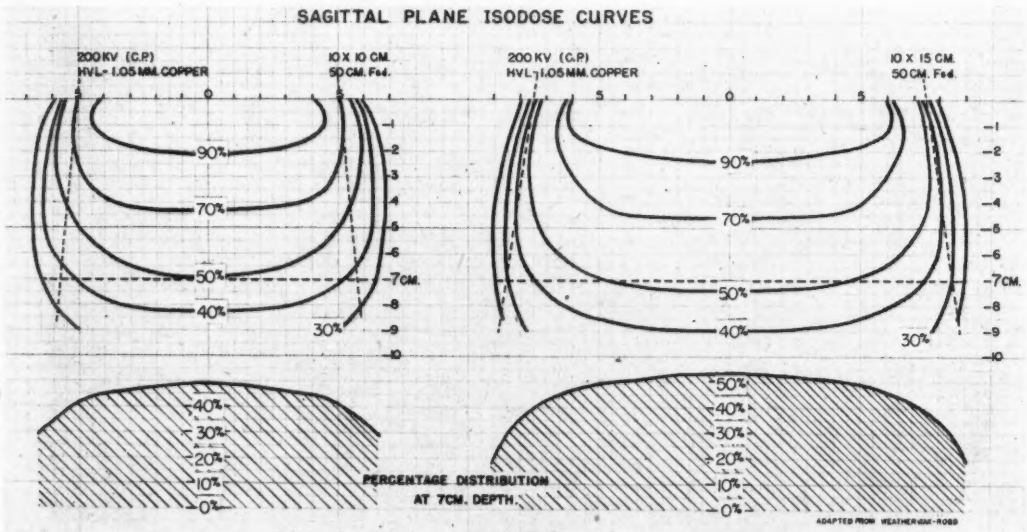

Figure 2

lapping divergence amount to only approximately 10 per cent. This becomes necessary if radiation sufficient to control the chronic inflammatory state is to be delivered.

After a rest period of four weeks, a second identical course of treatment is given, and after a second rest period of 12 weeks, the third and final course of treatment is administered.

Since the latter part of 1941, a total of 167 patients with rheumatoid spondylitis have been treated. Of these, 42 were excluded from the reported series because of incomplete data.

The 125 cases analyzed have been subdivided into four groups: (1) those receiving three courses; (2) those receiving two courses; (3) those receiving a single course, and (4) those receiving local treatment. Since division into stages of disease, as indicated by roentgen findings, is at best an arbitrary classification not particularly dependent upon the duration or severity of symptoms, such segregation has not been attempted.

Instead, the response of the group, without regard to such staging, has been taken as a test of the efficiency of the method in control of symptoms and prevention of recurrence, since pain may be alleviated and muscle spasm relieved, even in the most advanced stages.

The cases are broken down according to sex and age of the patients at the time treatment was started, as indicated in Table 1.

Subsequent to the completion of each course of treatment, the patients were followed by the referring physicians, with such orthopedic and general supportive measures and physical therapy as was deemed necessary. Prior to each course of roentgen therapy, and oftener if indicated, a complete blood cell count and sedimentation rate determination was obtained.

Response was measured subjectively and objectively and recorded as the consensus of the arthritis committee or by the private physician. Subjective criteria included presence or absence of pain, ability to assume a single position for any considerable period of time, and ability to sleep.

TABLE I

	THREE COURSES		TWO COURSES		ONE COURSE		LOCAL	
AGE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
15 - 19	1	1	0	1	0	0	1	0
20 - 24	5	1	4	2	0	2	0	0
25 - 29	12	2	5	1	2	0	4	0
30 - 34	9	2	3	4	1	1	1	0
35 - 39	15	2	5	0	1	0	0	0
40 - 44	13	0	4	2	1	1	0	0
45 - 49	1	3	0	0	0	1	0	0
50 - 54	4	1	2	1	0	0	0	0
55 - 59	0	0	0	1	1	0	0	0
60+	1	0	0	0	0	0	0	0
TOTAL	61	12	23	12	6	5	6	0
NET TOTAL	73		35		11		6	

Objective criteria included blood cell counts and sedimentation rates, degree of mobility of the spine, increase in chest expansion, correction of postural defects, change in weight, and, in a few instances, comparative roentgenograms of the spine.

EVALUATION OF RESULTS

Table 2 indicates the period over which the patients were followed for determination of response:

In order to properly evaluate a therapeutic modality, any associated undesirable reactions or effects must be weighed against the benefits. The more significant of these complications are gastro-intestinal disturbances, usually transient in nature, which occur concomitantly with the series of roentgen treatments. Of more grave significance is the development of leukopenia, which usually appears subsequent to a treatment course. A count of less than 4,000 leukocytes has been considered indicative of leukopenia. In addition, menstrual dysfunction or amenorrhea may occur in females of child-bearing age. But except for the latter effect, which may be permanent, the most important consideration is the incidence of recurrence of symptoms in the back.

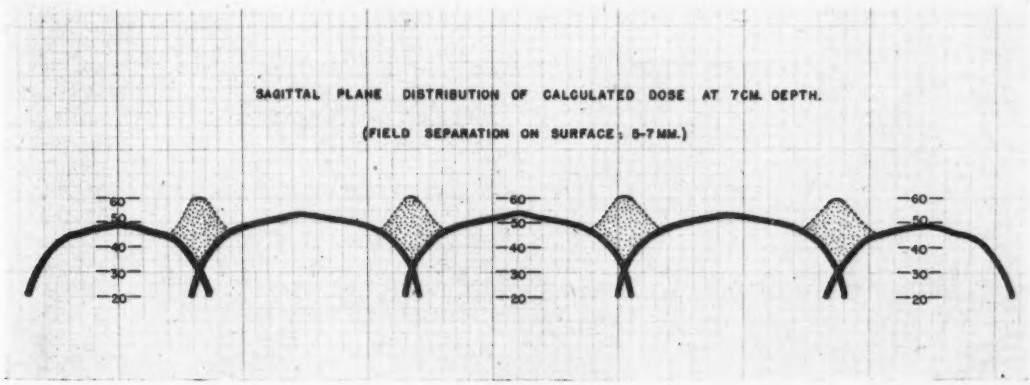

Figure 4

Symptoms were not relieved, or they recurred, in 10 of 73 patients (13.8 per cent) treated with three courses; in 13 of 35 patients (37.1 per cent) receiving two courses, and in 6 of 11 patients (54.5 per cent) receiving only a single course. All the patients treated locally suffered recurrence, and subsequently were given treatment to the whole spine, three having received three courses, two having received two courses, and one a single course.

These findings, the other complicating reactions, and the incidence of associated peripheral joint involvement are summarized in Table 3:

Several pertinent facts become apparent as these results are studied. Any active case of rheumatoid spondylitis warrants roentgen therapy, regardless of the duration and severity of symptoms, or stage of disease as indicated by roentgenograms. For a patient with even the most advanced case will probably be relieved of pain and muscle spasm, while increased motion of the spine and thoracic cage will be regained by those in whom fixation and ankylosis has not occurred, especially if orthopedic and general supportive measures are prescribed in association.

No actual contraindications to roentgen irradiation exist, except that treatment should be withheld if leukopenia is noted. Local heat, diathermy, and infra-red lamps should be avoided during and approximately two weeks before and after a course of x-ray, in order to avoid an undesired skin reaction.

The complications to be expected have been mentioned. Of these, only artificial menopause appears to be permanent, but fortunately the incidence appears quite low. Leukopenia may occur, apparently more likely in women, without regard to age, but is transient in nature. Similarly the gastro-intestinal disturbances clear soon after a course of treatment, and may be moderated if not completely controlled by the use of parenteral vitamin B components, trasentine and phenobarbital, or such anti-histaminic agents as pyribenzamine or benadryl.

Although in many cases there was a drop in sedimentation rate, the real value of the test as a good criterion of therapeutic response appears doubtful. At least it did in this series. Since 48.8 per cent of those treated had involvement of the peripheral joints as well as the spine, indicating the systemic nature of the process, a permanent drop in the sedimentation rate could hardly be expected unless the spine were the only site of disease activity. However, it is not disputed that the sedimentation rate remains of value in initially establishing the diagnosis.

TABLE II

CASES ACCORDING TO FOLLOW-UP INTERVAL

	THREE COURSES	TWO COURSES	ONE COURSE	LOCAL
1-5 MOS	26	14	3	2
6-12 MOS	17	5	1	0
1-2 YRS	15	5	1	2
2-3 YRS	10	8	2	0
3-4 YRS	4	2	1	0
4-5 YRS	1	1	2	0
OVER 5 YRS	0	0	1	2
TOTAL	73	35	11	6

TABLE III

COMPARISON OF RESULTS

		G-I DISTURBANCES		LEUCOPENIA		AMENORRHEA	RECURRENT BACK SYMPTOMS	PERIPHERAL INVOLVEMENT	
	AGE	MALE	FEMALE	MALE	FEMALE			MALE	FEMALE
THREE COURSES (73 CASES)	15-19	1	0	0	1	0	1 AT 18 MONTHS	1	1
	20-24	3	1	1	1	0	—	5	1
	25-29	3	0	1	[illegible]	2	1 AT 12 MONTHS	7	0
	30-34	0	0	0	1	1	1 AT 4 MONTHS	1	0
	35-39	6	0	2	0	1	1 AT 12 MONTHS 1 AT 15-19-23 MOS 2-NO RESPONSE	4	1
	40-44	4	0	0	0	0	1 AT 18 MONTHS 1 AT 3 YRS (CERVICAL)	7	0
	45-49	1	3	0	0	0	—	0	1
	50-54	0	0	0	1	0	1 AT 2 MONTHS	1	1
	55-59	0	0	0	0	0	—	0	0
	60+	0	0	0	0	0	—	1	0
	TOTAL	18	4	4	5	4	10	27	5
	NET TOTAL	22		9		4	10 (13.8%)	32	
TWO COURSES (35 CASES)	15-19	0	0	0	0	0	1 AT 6 MONTHS	0	1
	20-24	3	0	0	1	0	1 AT 3-13 MONTHS	2	2
	25-29	2	1	0	1	1	1 AT 1 MONTH 1 AT 18 MONTHS 1 AT 4-24 MONTHS	2	0
	30-34	1	2	0	1	2	1 AT 3 MONTHS 1 AT 4-8 MONTHS 1 AT 14-26 MONTHS	2	3
	35-39	1	1	0	0	0	1 AT 7 MONTHS	3	0
	40-44	3	1	1	1	0	1 AT 5 MONTHS 1 AT 4 MONTHS	3	2
	45-49	0	0	0	0	0	—	0	0
	50-54	0	1	0	0	0	1 AT 6 MONTHS	1	1
	55-59	0	0	0	0	0	1 AT 2-4 MONTHS	0	1
	TOTAL	10	6	1	4	3	13	13	10
	NET TOTAL	16		5		3	13 (37.1%)	23	
ONE COURSE (11 CASES)	20-24	0	1	0	0	0	1 AT 3-6-18 MOS	0	1
	25-29	1	0	0	0	0	1 AT 17 MONTHS	1	0
	30-34	0	0	0	1	0	1 AT 24-48 MOS	1	1
	35-39	0	0	0	0	0	—	0	0
	40-44	0	0	0	0	0	1 AT 5 MONTHS	1	0
	45-49	0	0	0	0	0	1 AT 2 MONTHS 1 AT 36 MONTHS	0	0
	TOTAL	1	1	0	1	0	6	3	2
	NET TOTAL	2		1		0	6 (54.5%)	5	

DISCUSSION

The results obtained after treatment locally, compared to one, two, or three courses to the entire spine, indicate that the three-course technique with properly spaced rest periods is the most efficient in permanent relief of symptoms. The dose delivered by the latter method is in accord with the principles of therapy for chronic inflammatory processes, and explains the relief of pain and muscle spasm. Although microscopic proof is lacking, the radiobiological effect probably is primary in the action on the lymphocytes, monocytes and plasma cells infiltrating the synovial and subsynovial tissues.

The destruction of the leukocytic infiltration as the result of the first course of treatment probably accounts for the initial relief noted by most patients. Recovery of injured cells leads to resurgence of the low grade inflammation, which again is dampened by the second course of treatment. The residual inflammatory components, more likely to have been injured by the two previous exposures to radiation, are less likely to recover, and are more likely held in permanent abeyance by the third series. If these circumstances exist, the need for homogeneous distribution of the radiation becomes more apparent.

Whether or not the metabolic activity of the fibroblasts is also affected is more difficult to hypothecate. While one might expect a response to radiation such as is shown by many keloids, nevertheless, in several instances, check roentgenograms have shown advancement of the ligamentous calcification and fusion of the articular processes in a symptom-free patient. Furthermore, no alteration has been detected in those cases which have progressed to ankylosis and extensive calcification of the paraspinal ligaments.

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REFERENCES

1. Anders, J. M., Daland, J. and Pfahler, G. F.: The treatment of arthritis deformans with the roentgen rays, J.A.M.A., 46:1512-1514 (May 19), 1906.

2. Angevine, D. M.: The pathology of rheumatic diseases, Radiology, 49:1-7 (July), 1947.

3. Baker, L. D.: Rhizomelic spondylitis: orthopaedic and roentgen therapy, J. Bone and Joint Surgery, 24:827-830 (Oct.), 1942.

4. Freyberg, R. H.: Roentgen therapy for rheumatic diseases, Med. Clin. N. A., 30:603-615 (May), 1946.

5. Hemphill, J. E. and Reeves, R. J.: Roentgen irradiation in the treatment of Marie-Strumpell disease, Am. J. Roent. & Rad. Ther., 54:282-289 (Sept.), 1945.

6. McWhirter, R.: Ankylosing spondylitis, Brit. J. Rad., 18:302-305 (Oct.), 1945.

7. Pohle, Ernst A., and Morton, James A.: Roentgen therapy in arthritis, bursitis and allied conditions, Rad., 49:19-24 (July), 1947.

8. Scott, S. G.: Wide field roentgen therapy, Am. J. Roent. and Rad. Ther., 43:1-16 (Jan.), 1940.

9. Smyth, C. J., Freyberg, R. H. and Lampe, I.: Roentgen therapy for rheumatoid arthritis of the spine, J.A.M.A., 117: 826-831 (Sept. 6), 1941.

10. Steinberg, C. L.: The pathology of atrophic arthritis, J. Lab. and Clin. Med., 27:435-443, 1942.

CASE REPORTS

Massive Hematemesis Due to Acute Erosion of the Gastric Mucosa

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HEMORRHAGE from the gastro-intestinal tract, whether indicated by hematemesis or melena, has always been of interest to the clinician and often challenges his diagnostic ability. The known causes of such hemorrhage have been adequately classified,[3] but there is occurrence of bleeding from the alimentary tract which has thus far been unexplained.[9] Experience gained in treating such a patient recently has taught us that massive hemorrhage can result from acute transitory erosion of the gastric mucosa. This lesion has been described in the literature,[2] but it is our belief that it is not recognized by clinicians as frequently as it might be. Patients who have hematemesis are usually treated by conservative measures, and frequently x-ray studies of such patients, made after their symptoms have subsided, show no abnormality of the stomach. Since death can result from massive hematemesis, however, surgical intervention in certain instances may be life-saving. The following case report is illustrative:

The patient, a white female 40 years of age, was hospitalized after vomiting large amounts of blood during the preceding 48 hours. She complained also of weakness and sweating. Questioning revealed that the patient had been in excellent health, without symptoms, before the onset of this illness. On one occasion, nine years before, she had been hospitalized for three weeks because of hematemesis. At that time conservative medical therapy was followed by complete recovery. Repeated x-ray examinations made then showed no abnormality of the gastro-intestinal tract.

Examination showed the patient to be thin, acutely ill, obviously in shock. The pulse rate was 80 and the blood pressure 80 mm. of mercury systolic and 50 mm. diastolic. There was slight tenderness in the epigastrium but there were no other abnormal physical signs.

Shortly after admission, the patient had a large tarry stool. Despite conservative therapeutic measures which included morphine, parenteral administration of vitamin K, withholding of food and fluid by mouth, and elevation of the foot of the bed, the patient's blood pressure fell to 65 mm. systolic and 30 mm. diastolic. At this point, a transfusion of 500 cc. of citrated blood was given intravenously, followed by 1,000 cc. of 5 per cent dextrose. The patient responded well to this therapy and during the ensuing 24 hours the blood pressure varied between 100 and 120 mm. systolic with the diastolic pressure at 70 mm.

On the second hospital day the patient was given a Sippy diet supplemented by intravenous fluids. Her condition continued to improve until the fifth hospital day when again a large amount of blood was vomited and shortly thereafter a large tarry stool was passed. The signs of shock reappeared, the pulse rate rising to 100 and the systolic pressure declining to 80 mm. Emergency laparotomy was decided upon and, in preparation for this, the patient was given a transfusion of 1,500 cc. of citrated blood.

An upper midline incision was made. On preliminary careful inspection, the stomach, duodenum, small intestine, and large intestine appeared normal, except for evidence of gross blood in the lumen of the entire intestinal tract. Since it seemed imperative to discover the source of bleeding, an opening in the stomach was made near the pylorus; when the blood was seen to be coming from the fundus, this small opening was closed and a larger incision made in the fundus. A large blood clot was adherent to the mucosa of the greater curvature and extended to within 5 cm. of the esophageal orifice. When the clot was removed active arterial bleeding from the center of a small, 4 mm. mucosal erosion was observed. A small portion of the stomach wall, which included this lesion, was excised. During operation the patient received 1,000 cc. of citrated blood.

Recovery was uneventful. Before discharge from the hospital, laboratory studies showed negative results in a serologic test for syphilis, normal urinary findings, and rapid recovery from the anemia. Results of gastric analysis on two occasions (12th and 18th postoperative days) revealed normal secretions of free hydrochloric acid.

X-ray visualization of the stomach with a barium meal on the 15th postoperative day was considered normal. Pathological examination of the specimen removed from the stomach wall showed acute erosion of the gastric mucosa.

Three months later the patient was readmitted to the hospital for study. She was symptom free, in excellent general condition, and had gained 15 pounds. Twelve-hour gastric drainage was carried out; 200 cc. of gastric juice was obtained, having a total acidity of 10 degrees. The response to the injection of histamine was essentially the same as on previous admission. Routine blood and urine examinations gave data within normal limits.

Careful study of the patient's personality and environment did not disclose any factors which might be considered causative.

The patient has been observed since then at monthly intervals and has remained well.

COMMENT

The relative frequency of acute erosion of the gastric mucosa as a cause of massive hematemesis is not accurately known. Meyer and Steigmann[6] believed that such a lesion was probably responsible for a third to a half of the occurrences of hematemesis. Whether or not this lesion is a progenitor of the common peptic ulcer is a matter of controversy. It seems clear that x-ray studies of the stomachs of patients who have acute erosion are usually not diagnostic,[5, 6, 7] but some observers have recognized the lesion by means of the gastroscope.[4] Hematemesis resulting from acute erosion of the gastric mucosa was first described by Dieulafoy in 1899; in his patients it was a complication of pneumonia and pneumococcal peritonitis. Similar cases

have been reported by Sanford and co-workers.[8] That the acute gastric erosion need not necessarily be associated with pneumonia is shown by the case here reported and by others.[1, 2, 4, 7, 10] Although the great majority of patients who have gastric hemorrhage due to acute erosion respond favorably to conservative therapy, fatalities have been reported.[4, 10] It is also of interest that the patients who have this lesion do not seem to have the personality typical of the chronic peptic ulcer patient.[7]

It is our opinion that operative intervention, limited to such procedure as will accomplish arrest of the bleeding, is life-saving in properly selected cases, notably those in which the patients have repeated massive hemorrhage despite conservative therapy. In such instances, it will be necessary to open the stomach in order to demonstrate the acute erosion. Obviously such operative intervention will not prevent the occurrence of subsequent erosion. Proper treatment and/or prevention of this lesion must await some knowledge of its cause.

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REFERENCES

1. Bohrer, J. V.: Massive gastric hemorrhage, Ann. Surg., 114:510 (Oct.), 1941.

2. Deaver, J. B.: Gastric hemorrhage, Surg., Gynec. and Obst., 18:294, 1914.

3. French, Herbert: Index of differential diagnosis, 6th ed., Williams & Wilkins, Baltimore, 1945.

4. Jones, F. A.: Hematemesis and Melaena, Brit. M. J., 1:689 (Jan. 5), 1943.

5. Marshall, S. F.: Causes of gastric and duodenal hemorrhage, Clin. of North Amer., 21:721 (June), 1941.

6. Meyer, K. A., and Steigmann, F.: Gastric hemorrhage: Implications as to treatment, Clin. of North Amer., 24:29 (Feb.), 1944.

7. Moschcowitz, E., Mage, S., and Kugel, V. H.: Causes of painless gastro-duodenal hemorrhage, Am. J. M. Sci., 202:52 (July), 1941.

8. Sanford, C. H., Hughes, J. C., and Weems, J.: Pneumonia complicated by acute pneumococcic hemorrhagic ulcerative gastro-enteritis (Dieulafoy's erosion), Arch. Int. Med., 62:597 (Oct.), 1938.

9. Stone, H. B.: Large melena of obscure origin, Ann. Surg., 120-582 (Oct.), 1944.

10. Case Records of M.G.H., No. 32222, New England J. Med., 234:741, 1946.

Fracture of the Ribs by Muscular Action Other Than Coughing or Sneezing

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FRACTURE of the ribs is usually described as a result of direct violence, such as falls or blows.[7, 9] In such cases the rib is usually fractured at the site of trauma. In fractures caused by bending and compressions such as an anteroposterior squeeze, the ribs are usually fractured at the junction of their posterior and lateral curves.[3, 9] The injury may be bilateral and may occur in one or more ribs. Fracture of the ribs may be due to pathological and certain other general conditions predisposing to fractures, such as old age, insanity and general wasting diseases.[1] Fracture by muscular action is considered a stress and fatigue fracture similar to the march fractures found in service men undergoing unusual physical exercise.[1, 2] Rib fractures have been reported from simple muscular strains and violent sneezing.[3, 5] Coughing may be responsible especially in severe tracheitis, in pertussis, in pneumonia, in tuberculosis, and in whooping cough. The injury sometimes occurs from the muscular effort of lifting heavy loads, from the strains of parturition and even from the exercises of golf.[4] It may also occur while straining at stool or vomiting.

Cases attributed to sudden and undue muscular strain as in lifting heavy objects are very few in number. Kleiner,[4] in 1924, reviewing the literature, found 56 cases of ribs fractured by muscular action, two of which were in the first rib, while in the rest of the series the fracture was in the lower six ribs. In only 13 of these 56 cases was the fracture caused by violent or sudden muscular action other than coughing. Kleiner added the report of a case in which a man fractured the right third rib while unloading large flagstones. Alderson,[1] in 1944, reported 35 cases of stress fractures of the first rib following "unaccustomed and strenuous exertion." In 1947 the authors of this presentation reported a case of fracture of the first rib due to muscular pull.[8] In the following three cases fracture resulted from sudden muscular action.

CASE REPORTS

CASE 1.—A meat cutter, 52 years of age, slipped on a wet floor. He did not fall to the floor but, in breaking his fall, twisted his body and felt something snap in the right side of his chest. Roentgenograms taken on the day of the injury showed fracture of the right fifth rib anteriorly near the axillary region. The fracture healed.

CASE 2.—A bartender, 58 years of age, while lifting a heavy beer keg felt sudden sharp pain in the right side of the chest. Roentgenograms taken the following day showed fracture of the right eighth rib posterior to the angle. The patient was discharged clinically cured a month later.

CASE 3.—A carpenter, 52 years of age, while pulling hard with his left hand in hanging a door, felt something "click" in the left side of the chest. Roentgenograms five days later showed fracture of the anterior extremity of the left sixth rib with fragments in good position. The patient received treatment for one week and then did not return for further treatment.

The length of the first two and the last two ribs protects them, and because of this protection most fractures due to muscular action occur in the middle ribs, the fourth to the eighth. Fractures of this type rarely occur in children due to the elasticity of the ribs. The average age of individuals suffering fracture of the ribs is over 40 years. About 77 per cent of such occur in males because of exposure and occupations.[7] The fracture is usually of the linear type without displacement and healing takes place without complications. Oechsli[6] is of the opinion that the fractures are probably due to the opposing forces of the obliquus externus abdominis and the serratus anterior muscle.

SUMMARY

Fracture of the ribs due to muscular action as in coughing is of frequent occurrence.

Fracture of ribs due to muscular action other than coughing or sneezing is relatively less frequent.

Three cases are reported of fracture of ribs due to sudden muscular action as in lifting or straining.

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REFERENCES

1. Alderson, B. A.: Stress fractures of first rib, Brit. J. Radiol., 17:323-326 (Nov.), 1944.

2. Bond, Tom B.: Spontaneous fractures of the ribs in healthy individuals, Texas State J. Med., 40:642-643 (April), 1945.

3. Jones, H. E.: Fracture of a rib by sneezing, Glasgow Med. Journal, 67:206, 1907.

4. Kleiner, S. B.: Fracture of ribs by muscular action with report of a case, Boston M. & S. J., 190:1034-1035 (June 12), 1924.

5. Knoepp, L. F.: Fractures of the ribs; a review of 386 cases, Am. J. Surg., 52:405-414 (June), 1941.

6. Oechsli, W. R.: Rib fracture from cough, J. Thoracic Surg., 5:530-534 (June), 1936.

7. Speed, Kellogg: Fractures and dislocations, Lea & Febiger, Philadelphia, 1935, 3rd edition, pp. 280-291.

8. Waxman, A., and Geshelin, H.: Fracture of the first rib due to muscle pull, Calif. Med., 67:243-244 (Oct.), 1947.

9. Wilson, Philip D.: Management of fractures and dislocations, J. B. Lippincott Co., pp. 485, 493.

Thromboangiitis Obliterans in a Woman: Factor of a Mild Electric Shock in Initiating Gangrene

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ALTHOUGH the reason cannot be satisfactorily explained, thromboangiitis obliterans (Buerger's disease) in women[1] is rare. Other peculiarities of this disease are its rarity in Negroes,[2, 4] its rare association with diabetes mellitus[6] and its relative preponderance in individuals of Jewish ancestry.[1, 3]

Silbert[5] in reviewing his own series of 1,400 cases of thromboangiitis obliterans found only 12 cases clinically diagnosed in women. The Mayo clinic group[1] in a survey of the literature in 1946 found only 20 reported cases in women, with only four of the 20 proven by microscopic section. Eight were typical cases and eight were apparently not thromboangiitis obliterans. Davis and King[4] reported the only proven case in a Negro woman.

In the diagnosis of thromboangiitis obliterans, care must be taken to exclude the instances of peripheral vascular disease due to phlebitis, embolism, polycythemia and ergot poisoning, and of arteriosclerosis or arteritis due to other causes such as syphilis, periarteritis nodosa, disseminated lupus erythematosus and disseminated arteritis. In arriving at a diagnosis of thromboangiitis in a woman, it should be established that she is a smoker of tobacco, and the following features should be present:

1. Evidence of organic occlusion of the large arteries of the extremities.
2. Onset of symptoms relatively early in adult life.
3. Involvement of arteries in both upper and lower extremities.
4. Absence of demonstrable arteriosclerosis, diabetes mellitus and other causes of peripheral vascular disease.

The following report of a case is submitted not only because of its occurrence in a woman but because of the unusual exciting agent which apparently precipitated the gangrenous process.

REPORT OF A CASE

A white married woman, aged 34, of Dutch-English ancestry, ten years previously had first experienced intermittent aching pains in the fingers of the hand upon exposure to cold, associated with color changes of pallor, blueness and redness. These symptoms gradually increased in severity. Early in 1945 she visited a clinic in the East where Raynaud's disease was diagnosed. Eighteen months before the present illness, pains upon exposure to cold appeared in the toes of the feet, and mild intermittent claudication was felt in both legs upon walking two to three blocks at a normal gait. The patient said she had smoked a minimum of one package of cigarettes daily for many years. There was no history of injury to an extremity or of arthritis, diabetes mellitus, lues, or other contributory disease, and the patient said she had never had thrombophlebitis. There was nothing indicative in the family history.

Present illness: The patient, a telephone switchboard operator, while pulling cords from the switchboard felt pain in the distal portions of the second and third fingers of the left hand, as if strands of wire had pierced the skin. After a few days she reported for medical care. The examining physician's findings one week after the injury were a puncture wound of the fat pad of the left index finger and cellulitis. A wet dressing was applied and the finger was immobilized with a splint. The puncture wound continued to drain, and penicillin was administered daily. The condition remained subacute for the next two months, although the adjacent middle finger became involved in the inflammatory process. Conservative treatment was continued until approximately ten weeks after the initial complaint, when the patient was hospitalized, and an amputation was performed through the proximal phalanges of the index and middle fingers. Healing was satisfactory. The pathologist's report of the microscopic sections (Figures 1 and 2) was: Obliterating endarteritis of the small blood vessels. Some of these were completely obliterated. There was some perivascular infiltration of the ground cells. Diagnosis: Thromboangiitis obliterans.

The results of general physical examination, including all indicated laboratory tests, were essentially negative. There was no evidence of scleroderma, scalenus anticus syndrome or cervical rib. Peripheral arterial pulsations recorded a week before amputation were as follows: The radials and posterior tibial artery pulsations were palpable,

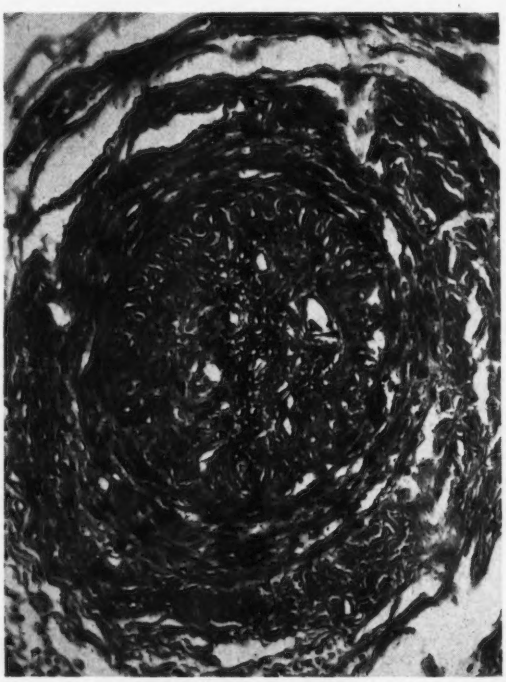

Figure 1.—Digital artery (x 200). This closely resembles Figure 95, "Old healed stage in small artery," in Buerger's text, "The Circulatory Disturbances of the Extremities," p. 343.

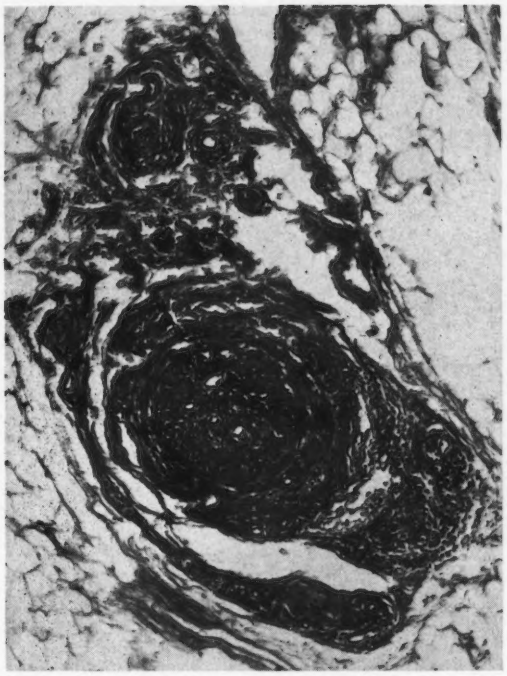

Figure 2.—Low power view (x 90) from section where Figure 1 was obtained.

but pulsations in the ulnar and dorsalis pedis arteries could not be felt. The patient, who had continued to smoke, was reexamined ten months later. The amputation sites were healed. The fingers and toes remained painful on exposure to cold, with color changes in the fingers, and there was still complaint of mild intermittent claudication in both calves on walking two to three blocks at a normal pace. The fingers were cold and dry, as were the feet. There were no postural changes. Palpable peripheral pulsations were as follows: The right dorsalis pedis was faintly palpable, but the left dorsalis pedis and both posterior tibials could not be felt. The popliteals and radials were normal and the ulnar arteries were not palpable.

COMMENT

The early diagnosis of Raynaud's disease in this case is understandable. The early symptoms were of a vasospastic character and resembled those of Raynaud's syndrome. Thromboangiitis obliterans was apparently not considered due to the lack of signs and symptoms of organic arterial occlusion. The subsequent course of events led to the correct diagnosis. Practically all the diagnostic criteria were present in this case, even the factor of smoking. The trauma which initiated the gangrenous process was unusual and open to controversy. As there were no strands in the telephone cable in question, the possibility of perforation of the skin by fine strands of wire was eliminated. It was found that 0.70 to 0.71 amperes at 24 volts direct current was periodically present about the telephone plugs and a mild shocking current could be felt, especially if the subject had moist hands. It is felt that a sufficient electrical current was present to cause cellular damage. Although the trauma that such a current might cause to normal tissues would be practically unnoticed, ischemic tissues, such as those present in this case, frequently respond poorly even to trivial trauma. This may have been a significant factor in this case.

CONCLUSIONS

A case of proven thromboangiitis obliterans in a white woman is reported.

An electric charge of 0.70 to 0.71 amperes at 24 volts direct current may have been the traumatizing agent in this case. Apparently sufficient damage was done to the ischemic tissues to precipitate a gangrenous process.

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REFERENCES

1. Allen, E. V., Barker, N. W., and Hines, E. A.: Peripheral vascular diseases, Philadelphia, W. B. Saunders Company, 1946.

2. Breidenbach, W. C., and Palmer, D. M.: Thromboangiitis obliterans in the negro: Report of a case and review of the literature, Am. Ht. Journal, 33:849-855 (June), 1947.

3. Buerger, Leo: The circulatory disturbances of the extremities, Philadelphia, W. B. Saunders Company, 1924.

4. Davis, H. A., and King, L. D.: A comparative study of thromboangiitis obliterans in white and negro patients, Surg. Gynec. and Obst., 85:597-603 (Nov.), 1947.

5. Silbert, S.: Etiology of thromboangiitis obliterans, J.A.M.A., 129:5-9 (Sept.), 1945.

6. Zazeela, H. A., and Weinroth, L. A.: Thromboangiitis obliterans and diabetes mellitus in the same patient, The J. Mt. Sinai Hosp., 12:776-782 (May-June), 1945.

The Use of BAL in Generalized Argyria

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HEAVY metal poisonings, especially the toxic effects resulting from gold,[2, 10] arsenic,[2] and mercury,[1, 4] have been successfully treated with BAL (British Anti-Lewisite, 2, 3-dimercaptopropanol). This drug was also discovered to be efficacious as an antidote in cadmium,[9] zinc,[13] copper,[6, 7] lead,[12] antimony, bismuth, chromium, and nickel poisonings.[1] No previous publication has been noted concerning the use of BAL in clinical argyria. The successful management of silver poisoning, whether local or generalized, has always remained a therapeutic problem. With the efficacy of BAL in other heavy metal toxicities a trial with this drug appeared indicated in a case of long-standing generalized argyria.

Arsenic, gold, and mercury, in particular, produce their toxic effects by combining with the sulfhydryl groups of tissue proteins of cellular enzymes to form mercaptides, thereby disrupting certain vital physiological processes. The sulfhydryl radical in dithiol BAL competes with the dithiol protein-metal compounds, thereby separating the offending metal from tissue union. To be effective, BAL must be administered soon after a heavy metal combines with the sulfhydryl group, otherwise the effect of the metal becomes irreversible.[10]

The distribution and metallic retention of silver in the body is very different from that of gold, arsenic, and mercury in the tissues. There is specific affinity of silver granules for the connective tissue framework and vascular system. In cases of argyria the reticulo-endothelial system is the site of the initial deposition, following which the majority of body structures contain silver deposits.[5] Silver, which is deposited as a colorless substance, is uniformly distributed in the corium and darkens as the result of light influence.[11] This metal so deposited remains chemically unchanged or is oxidized as silver oxide or silver sulfide, depending on the loca-

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tion. Gaul noted the distribution and agglomeration of silver particles as reciprocal to that of the capillary network with the metal lying free in the connective tissue.[3]

The treatment of argyria has always been disappointing. Potassium iodide injections, methenamine, oral sodium thiosulfate, and local injections of 6 per cent sodium thiosulfate and 1 per cent potassium ferricyanide have been therapeutic failures. A substance which would combine with metallic silver in the tissues, leading to its consequent excretion, or one which would effectively but harmlessly cause its chemical reduction and have no disturbing side reactions would be a desirable therapeutic agent for patients with argyria. Olcott, using a limited number of experimental animals, discovered that BAL, even in large doses, was incapable of mobilizing silver.[8] However, a clinical trial with BAL appeared indicated in the following case of silver poisoning, even though the chronicity of argyria, and doubt as to whether silver is combined in the tissues with sulfhydryl groups of protein fractions of cellular enzymes, permitted little hope of success.

CASE REPORT

A white American male, 45 years of age, had had generalized argyria since 1932, resulting from intranasal administrations of 10 per cent silver nitrate or argyrol solutions for treatment of chronic vasomotor rhinitis. Medication was constantly employed by the patient for 17 years before the diagnosis was established, the average weekly dosage being an ounce. A bluish hue gradually developed over the upper part of the body so that the patient was suspected of having cyanosis from a cardiac disorder. By 1935, despite cessation of colloidal silver therapy, the skin of the patient had assumed a metallic silver color on the entire head and a slate gray color from the neck down to the mid-thorax together with localized areas on the dorsum of both hands and wrists. He had visited several eastern medical centers for treatment but met with no success, although the regimen of 6 per cent sodium thiosulfate and 1 per cent potassium ferricyanide was employed by local injections.

Physical examination of the patient on August 5, 1947, disclosed a well developed, well nourished male in no acute distress. He possessed a metallic silver pigmentation over the entire head and a slate gray color from the neck down to the xiphoid and on the wrists and dorsum of both hands. The buccal cavity and pharynx were also slate gray, and the tongue darkly shaded. Both ocular conjunctivae were slightly bluish-gray. A small area of herpes zoster was observed over the left subcostal region.

Erythrocytes numbered 5,100,000 with a hemoglobin value of 15.5 gm. per 100 cc. Leukocytes numbered 8,600 with 60 per cent neutrophils and 40 per cent lymphocytes. There was slight anisocytosis and poikilocytosis. The Kahn determination was negative. Results of a complete urinalysis were normal. Lack of facilities prevented determination of argyremia levels.

On September 2, 1947, BAL 10 per cent in 20 per cent benzyl benzoate in peanut oil was administered intramuscularly in especially large doses: 3.6 cc. six times daily for two days, then 3.6 cc. twice daily for ten days. Ephedrine sulfate in the amount of 25 mgm. was taken orally before each injection to suppress the disturbing side reactions like burning of the buccal cavity, increased lacrimation, nausea, epigastric distress, malaise, and pain over the injection site. Following this treatment schedule there was no change in the appearance of the patient. A similar course was given beginning November 18, 1947, except that 50 mgm. of oral pyribenzamine was employed to control the side effects of BAL. In a three-month follow-up the patient's condition re-arsenic, and mercury poisonings.

SUMMARY

The case reported is one of generalized argyria which did not respond to intensive BAL therapy.

REFERENCES

1. Braun, H., Lusky, L., and Calvery, H.: The efficacy of 2, 3-dimercaptopropanol (BAL) in the therapy of poisoning by compounds of antimony, bismuth, chromium, mercury, and nickel, J. Pharmacol. & Exper. Therap., 87:103-119 (Aug.), 1946.

2. Cohen, A., Goldman, J., and Dubbs, A. W.: The treatment of acute gold and arsenic poisoning, J.A.M.A., 133:749-752 (Mar. 15), 1947.

3. Gaul, L. E., and Stand, A. H.: Clinical spectroscopy; quantitative distribution of silver in the body and its physiopathologic retention as reciprocal of capillary system, Arch. Derm. & Syph., 32:775-780 (Nov.), 1935.

4. Gilman, A., Allen, R. P., Philips, F. S., and St. John, E.: The treatment of acute systemic mercury poisoning in experimental animals with BAL, thiosorbitol and BAL glucoside, J. Clin. Investigation, 25:549 (July), 1946.

5. Hill, W. R., and Pillsbury, D. M.: Argyria. The pharmacology of silver. Williams & Wilkins Co., Baltimore, 1939.

6. McCance, R. A., and Widdowson, E. M.: Observations on the administration of BAL-intra to man, Nature, London, 157:837 (June 22), 1946.

7. McDonald, I. W.: Effect of BAL-intra on excretion of copper by the sheep, Nature, London, 157:837 (Jan. 22), 1946.

8. Olcott, C. T., and Riker, W. F.: Experimental argyrosis. Treatment of rats receiving silver with 2, 3-dimercaptopropanol (BAL), Science: 105, 67 (Jan. 17), 1947.

9. Peters, R. A., Stocken, L. A., and Thompson, R. H. S.: British anti-lewisite, Nature, London, 156:616, 1945.

10. Ragan, C., and Boots, R. H.: The treatment of gold dermatitides, J.A.M.A., 133:752-754 (Mar. 15), 1947.

11. Stillians, A. W.: Argyria, Arch. Derm. & Syph., 35:67-77 (Jan.), 1937.

12. Telfer, J. G.: Use of BAL in lead poisoning, J.A.M.A., 135:835 (Nov. 29), 1947.

13. Editorial, American work on BAL, Nature, London; 157:218, 1946.

California Cancer Commission Studies*
Chapter XXVI

Cancer of the Ovary and Fallopian Tube

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IT IS not surprising that the ovary, with its complex embryologic and evanescent cytologic nature, is so susceptible to tumor formation. No other organ undergoes the frequent periodic changes characterized by orderly growth, hypertrophy and regression. From this cytophysiologically active organ may arise tumors of all types, benign, malignant, primary, secondary, small, large, cystic, solid, papillary, smooth-walled, unilocular and multilocular. The clinico-pathologic picture is further confused by a paucity of symptoms and the absence of a standard system of classification and nomenclature. To aid in the early diagnosis and the successful treatment of ovarian neoplasms, the following brief data are presented.

INCIDENCE

Cancer of the ovary may develop at any age, but most frequently appears after the 40th year. Cancers at this site account for approximately 10 per cent of the malignant tumors of the female genital tract.

TYPES

Retention cysts: Benign retention cysts, either of follicular or corpus luteum origin, constitute a large proportion of all ovarian cysts. Occurring most frequently during the active reproductive years, these non-neoplastic cysts may attain 5-6 centimeters in diameter and become quite painful. Fortunately, most of these cysts spontaneously regress, but an occasional one may rupture with varying degrees of severity. In far too many cases operation is done and the normal ovary is needlessly sacrificed. It is this type of cyst that is "needled" or "surgically removed," as an afterthought, following other abdominopelvic operations. This meddlesome interference is not uncommonly followed by disturbances of the menstrual cycle, painful menstruation and other signs of ovarian trauma. Small cysts are an index of normal ovarian activity and should be let alone.

Fibroma: Usually small, firm, and unilateral, this benign tumor may produce the so-called Meig's syndrome, characterized by ascites and hydrothorax. This clinical entity is not infrequently misdiagnosed as an inoperable abdominal malignancy. The removal of the tumor is followed by a complete cure. Other types of ovarian tumor may produce the same clinical picture.

Endometriosis: Malignant changes in endometrial tumors of the ovary are rare. The "chocolate-cyst of Sampson," with its dense adhesions and pseudomalignant involvement of contiguous organs, may present a gross clinico-pathologic picture of true malignancy. Observation of the presence of other stigmata of endometriosis, such as implants on the peritoneal surface of the cul-de-sac or shotty nodules in the uterosacral ligaments, will assist in the correct diagnosis. Complete regression of inoperable areas will follow either surgical or radiation castration. Fortunately there is a definite trend to conservative surgical operation in the younger patient, with an attempt to preserve the reproduction function.

Teratomas: The dermoid tumor of cystic type is usually asymptomatic, contains relatively mature tissue and infrequently develops evidence of malignancy. Surgical conservation is indicated in most instances. The opposite ovary should be carefully examined for possible involvement.

The solid teratoma is extremely malignant, contains immature tissue, and, in contrast to the dermoid cyst, has a very rapid clinical course. This kind of tumor appears most frequently in the prepubescent individual and is usually fatal despite the most radical and complete forms of therapy.

The struma ovarii, a colloid-containing tumor belonging to the teratomatous group, may cause symptoms of hyperthyroidism. Histologically it looks like thyroid tissue. This tumor has a low malignancy rating.

The chorionepithelioma is also of teratomatous origin. It is highly malignant and the prognosis is grave. The Aschheim-Zondek test is frequently helpful in diagnosing the presence of this infrequent tumor. This tumor may occur in young children.

Cystadenomas: Comprising the largest group of ovarian neoplasms, the serous and pseudomicinous types of cystadenomas present difficult problems of diagnosis and treatment. Relatively slow-growing tumors until they acquire malignant characteristics, they may present a paradox in diagnosis, as it is not uncommon to find them grossly malignant and microscopically benign, and vice versa. The presence of intra- or extracystic papillary growths indicates potential malignancy. Although it is common practice to remove only the involved ovary in the young adult, the tendency to bilateral involvement is great and conservatism is often unwise. The

*Organized by the Editorial Committee of the California Cancer Commission.

selection of the correct type or extent of surgical procedure depends more upon the operator's judgment of the gross pathologic findings than upon anything else. All ovarian cysts should be carefully examined at the time of operation. Solid tumors should be studied by frozen sections.

When the papillary projections are friable the lesion is clinically malignant and radical excision is the procedure of choice. Naturally, the surgical procedure is governed by the accessibility of the pelvic organs and the experience of the surgeon. When possible, the entire uterus and adnexae should be removed. The value of intensive irradiation is questionable, although in some instances the rate of growth may be retarded. When it is impossible to remove the involved ovaries, adequate irradiation may be followed by a temporary regression of the clinical signs of malignancy. If regression occurs following irradiation some authorities advise a second abdominal operation to remove the primary malignancy. A disturbing problem arises when the pathologist reports malignant changes in a smooth-walled ovarian tumor diagnosed and treated as a benign process by the surgeon. In such instances it is advisable to observe the patient at frequent intervals and to advise immediate operation if the remaining ovary shows any change in size.

Primary carcinoma: Fortunately, the highly malignant primary solid cancer of the ovary is relatively infrequent. In the early and clinically silent stages, the involved ovary is usually well encapsulated, and complete removal is possible. Bilateralism is common, and cure is possible only if the entire uterus and adnexae are removed. However, the clinical course of tumors of this type is relatively rapid, and the operable case is usually discovered during routine examination by the alert physician. Even in the early stages distant metastases are possible, and the prognosis therefore should be stated guardedly.

Secondary carcinoma: The solid cancer of secondary type is more common in the ovary than the primary involvement of the ovary. Such tumors are usually bilateral, and the primary tumor, frequently small and symptomless, may be in the stomach, intestines, breast, or uterus. Contiguous and lymphatic spread from the uterus is not infrequent and is thus another indication for total hysterectomy in the surgical treatment of ovarian cancer. The Krukenberg type usually has its origin in the stomach, although other parts of the gastro-intestinal tract are possible sites. The removal of the ovaries has little therapeutic value unless the primary tumor also is removed. The presence of bilateral ovarian tumors predicates a thorough study of the gastro-intestinal tract before operation is undertaken.

Recently, study of the gastric washings by the Papanicolaou-Traut technique has aided the diagnosis in the presence of bilateral ovarian tumors and the absence of gastro-intestinal signs.

SPECIAL TUMORS

Of interest are the relatively rare ovarian tumors capable of producing striking effects upon the sex characteristics of the individual. The following tumors are listed:

Granulosa cell tumors—tumors of the feminizing type—may produce sexual and somatic precocity in the prepubescent individual. In the sexually mature adult the signs of hyperesterinism caused by such tumors are less spectacular, although abnormal and heavy menstrual periods are quite frequent results. The presence of an ovarian tumor and hyperplasia of the endometrium is presumptive evidence of this type of tumor. In postmenopausal patients ovarian resurgence is indicative. Accruing statistics indicate definite malignant tendencies in tumors of this type.

Theca cell tumor, although closely related to the granulosa cell tumor, produces less hormonal disturbances, and since it occurs most frequently in the older age group, the problem of ovarian conservatism is of little import.

Dysgerminoma or the neuter type occurs most frequently in the young and sexually immature adult. Although clinical pseudo-hermaphroditism has been commonly observed in patients with dysgerminoma, it is now recognized as a coexisting state rather than a result of the tumor. Thus, tumors of this kind cause no clinically diagnostic symptoms. The tumor is considered moderately malignant.

Arrhenoblastoma or the masculinizing type may be clinically confused with the rare "adrenal-like cell tumor" of the ovary, adrenal cortical tumor and the so-called "Cushing syndrome." The presence of hypertrichosis and poorly developed secondary sex characteristics are not necessarily clinical evidence of this type of tumor. Rather, they may represent the individual's response to her own normal glandular influences. The characteristic clinical picture is one of defeminization followed by masculinization. The more immature forms of the tumor are definitely malignant.

SYMPTOMS

It should be constantly kept in mind that in the early stages there are no pathognomonic signs or symptoms by which malignant tumors of the ovary can be excluded as a possibility. Many patients are unaware of a tumor until its presence becomes noticeable by the increase in the size of the abdomen or they are able to palpate it through the abdominal wall. Pain is the most common symptom and is often in the hypogastrium; when the pain is located low in the pelvis it may herald the stage of ineradicable extension. Disturbances of menstruation do occur, and, when associated with palpable ovarian neoplasms, the presence of endometrial disease should be considered. While ascites, loss of weight and cachexia are usually considered indications of inoperability, it is not too uncommon to find the triad in the presence of a microscopically benign process amenable to present methods of treatment. The functionally active tumors produce clinical symptoms characteristic of their individual types.

DIAGNOSIS

The first step in treating suspected ovarian malignant disease is to establish the diagnosis, and this is possible only by an abdominal operation. This procedure should be carried out even in cases in which the tumor appears clinically to be malignant, as occasionally it will prove benign on microscopic examination. Rarely can tissue for diagnosis be obtained by cul-de-sac puncture or by paracentesis, with examination of the abdominal fluid for tumor cells. It is better to drain the ascites with a small incision than with a trocar, as the latter, like the peritoneoscope, may puncture the encapsulated neoplasm and spill the contents. Even when the abdomen is opened, the diagnosis is not always clear-cut. However, as a rule, a cyst of the ovary, if smooth, non-adherent, encapsulated, and unilocular, will be benign.

As in all surgical procedures the removed organ should be opened at once and the inner surfaces examined for papillary projections. While intracystic papillary growths are not always indicative of malignancy, it is best to regard them as a malignant process. Tumors that are cystic in some areas and solid in others are liable to be malignant; cysts with internal or external papillary excrescences, and all solid tumors, except the fibroma, should be suspected of malignancy. Any cyst or tumor with nodular irregular contour should be regarded with suspicion.

These rules, like all such dogmatic rules, are applicable only in the majority of instances. The cytologic interpretation is not always easy and it is not uncommon to have experienced pathologists disagree on the diagnosis. The importance of widespread distribution of the neoplasm to other parts of the abdomen is difficult to evaluate, especially when the primary tumor is of the cystadenomatous type. A guarded prognosis is wise even when the microscopic picture is one of benignity. It is well to remember that in most types of ovarian cancer there are no pathognomonic symptoms or signs and the essential early diagnosis is only possible through routine preventive examination. This means all women should have periodic pelvic examinations.

TREATMENT

There is general agreement that treatment should be by surgical removal whenever possible. In some instances it is possible to make apparently inoperable tumors operable by preoperative irradiation. However, it is well to bear in mind that nothing is gained, and often harm is done, by over-irradiation. In the presence of widespread metastases, marked improvement in general health and retardation of the malignant process may follow the removal of the primary focus. When the process is unilateral and without evidence of extracystic involvement, conservation of the remaining grossly normal ovary in the young adult is a common practice. This is not without danger and the patient should be examined frequently for many years afterward. If uterine bleeding is present the possibility of an endometrial malignancy should be ruled out. If the tumors are bilateral, primary focus in the gastro-intestinal tract should be searched for before any form of treatment is undertaken. The decision of treatment at the time of operation is not always easy, but when the process is obviously malignant the procedure of choice is the removal of the entire uterus and adnexae. However, operation in the presence of ovarian cancer is not without danger. Perforation of the intestine and bladder during operation is not uncommon and all probable sites of such accidents should be doubly checked before the abdomen is closed. Decision as to ovarian conservation should be guided by the age of the patient and the gross appearance of the tumor.

PROGNOSIS

There is no field in gynecology in which prognosis is more uncertain than it is in dealing with ovarian tumors. Permanent results following complete surgical removal of the malignant process are not strikingly satisfactory, as a large percentage of the patients die within two years after operation; and the five-year salvage is depressingly poor. Generally speaking, the cystic forms are less malignant and more amenable to treatment; they tend to regress following the removal of the primary focus. Prognosis should always be guarded, as it is not uncommon for a microscopically benign form to recur and metastasize. A satisfactory salvage can be attained only by early diagnosis, immediate and adequate operation and, when indicated, maximum irradiation. Early diagnosis is possible only through routine preventive examinations, a course too rarely advocated and practiced by the profession and too frequently unheeded by the laity.

SUMMARY

It is not necessary to remove the ovary because of the presence of benign non-neoplastic cyst which may be evidence of temporary disturbance of the ovarian follicle or corpus luteum.

All ovarian cysts should be opened at once for signs of intracystic growth. All solid tumors should be studied by immediate frozen section.

Proper treatment demands early diagnosis, which is possible only through abdominal operation. Solid and semi-solid tumors, cysts with irregular nodular contour, or with intra- and/or extracystic papillary excrescences should be suspected of malignancy. Cysts that are smooth, non-adherent, and unilocular are usually benign.

If it is possible to do so, the entire uterus and the adnexae of patients having malignant cysts or solid tumors of the ovary should be removed. Although irradiation is still of debatable value, it will retard the rate of growth in some instances.

Routine complete examinations will improve the present poor salvage rate. A cyst that either regresses or remains constant in size should be kept under observation. A cyst or tumor that increases in size should be removed.

The incidence of correct diagnosis will vary in direct ratio to the surgeon's knowledge of gross pathologic appearances, and the type or extent of treatment depends on this knowledge.

The relatively rare ovarian tumors of a type causing aberration of function usually result in characteristic clinical pictures of hormonal imbalance and for the most part are to be considered malignant.

Cancer of the Fallopian Tube

Carcinoma of the fallopian tube is a clinical curiosity in general practice. Because of its rarity, the difficulty of diagnosis and the unsatisfactory status of therapy, the prognosis invariably is bad. It occurs more commonly after the 40th year and accounts for 0.5 to 1 per cent of the malignant lesions of the female genital tract.

TYPES

Primary carcinoma occurs most frequently as a papillary type of adenocarcinoma. In approximately 70 per cent of the cases reported in the literature it occurred as a unilateral lesion.

Secondary carcinoma: More frequent than the primary form, the secondary type commonly arises from the cervix, endometrium, ovary and sigmoid colon.

SYMPTOMS

The danger of this lesion lies in the absence of any characteristic signs or symptoms. Occasionally the presence of an excessive watery sanguineous vaginal discharge is suggestive in the absence of active foci of inflammation. In most cases the sign-symptom complex of tubal cancer does not differ materially from that caused by other adnexal diseases.

DIAGNOSIS

The diagnosis is rarely made prior to operation. The presence of a soft, doughy, unilateral tubal mass in a woman near menopause should be interpreted as suspicious, and surgical intervention is the wise procedure. The true nature of the lesion is frequently overlooked at operation, as the process resembles either a pyosalpinx or hydrosalpinx. For this reason it is advisable to open the tubes for examination as soon as they are removed.

TREATMENT

Radical removal, if possible, of the internal genitalia and parametrium is the procedure of choice. Care should be taken not to rupture the involved tube. Although the value of irradiation is unknown, maximum roentgen therapy is advised.

PROGNOSIS

The infrequency of early diagnosis, the tendency to treat the disease as an inflammatory process, thus wasting valuable time, and the probable radioresistance, all combine to make the prognosis of tubal carcinoma very unsatisfactory. As with all types of genital cancer, it is curable only if treated in the early stages.

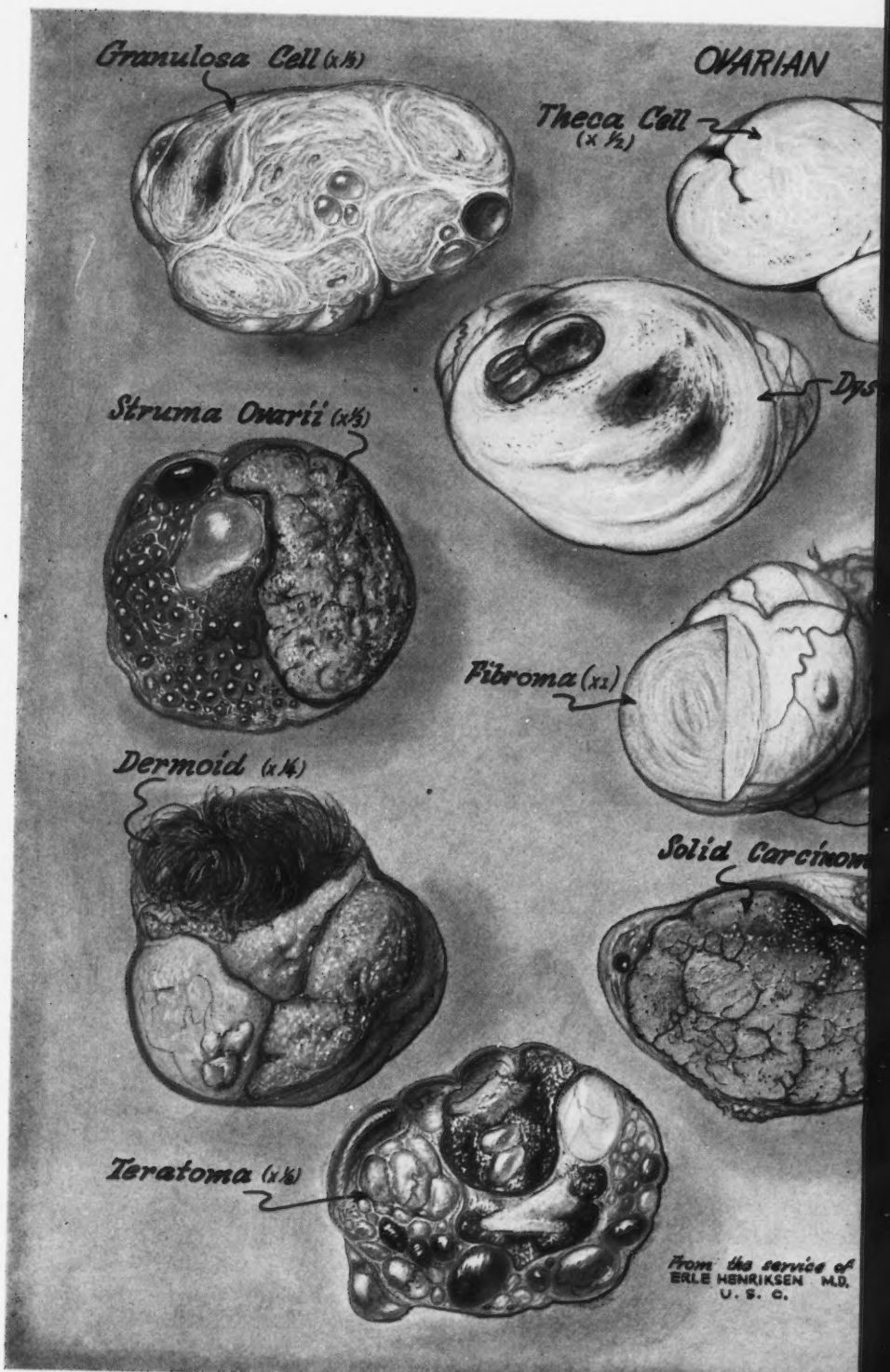
SUMMARY

Cancer of the fallopian tube is rare. It is frequently overlooked at the time of operation because the process resembles either a pyosalpinx or hydrosalpinx.

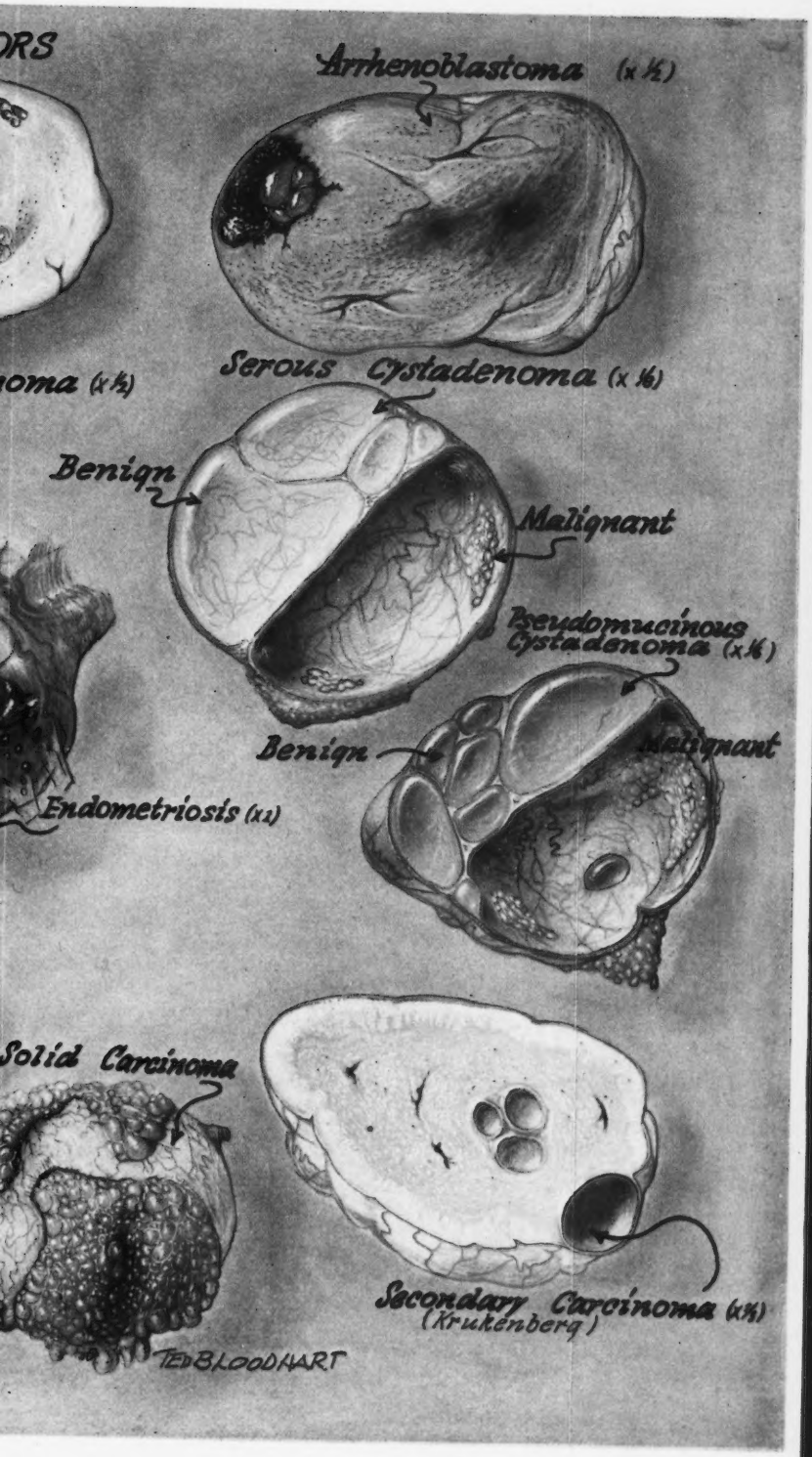
The presence of a soft, doughy, unilateral tubal mass should rouse suspicion of tubal cancer.

The treatment of cancer of the fallopian tube is radical removal of the internal genitalia and parametrium if possible.

"Skin Cancer" by Henry F. Ullmann, M.D., Chapter X of the California Cancer Commission Studies, will appear in this section of the March issue of CALIFORNIA MEDICINE.


OVARIAN
Granulosa Cell (x ½)
Theca Cell (x ½)
Struma Ovarii (x ½)
Fibroma (x1)
Dermoid (x ¼)
Solid Carcinom
Teratoma (x ½)
From the service of
ERLE HENRIKSEN M.D.
U. S. C.


OVARIAN TUMORS
Theca Cell
(x ½)
Dysgerminoma
Fibroma (x2)
Solid Carcinoma (x ½)
From the service of
ERLE HENRIKSEN M.D.
U. S. C.


ORS
Arrhenoblastoma (x ½)
noma (x ½)
Serous Cystadenoma (x ⅙)
Benign
Malignant
Pseudomucinous Cystadenoma (x ⅙)
Benign
Malignant
Endometriosis (x1)
Solid Carcinoma
Secondary Carcinoma (x ⅓)
(Krukenberg)
TED BLOODHART

California MEDICINE

OWNED AND PUBLISHED BY THE CALIFORNIA MEDICAL ASSOCIATION
450 SUTTER, SAN FRANCISCO 8 PHONE DOUGLAS 2-0062

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EDITORIALS

Industrial Medical Fees

Back in 1912, California adopted a workmen's compensation law, which provided that a workman injured in the course of his employment should become a charge against the employer. The law stated that the employer must provide the injured employee with full medical and hospital care and must also pay compensation to him to offset the loss of wages caused by the accidental injury. The physicians of that day were opposed to this new law, seeing in it a beginning of regimentation for the profession.

In the 36 intervening years, compensation insurance has grown to a large industry in California and total insurance premiums, not including the cost of self-insurance by large employers, run to more than $40,000,000 a year. Each injury requires medical attention and it has well been said that the physician is the keystone of the entire industrial accident structure. Nonetheless, we sometimes wonder if the doctors of 1912 weren't really right in their opposition to the original statute.

It seems that over the period of years the doctor has been the forgotten man in the care of industrial accidents. He provides the medical care. He evaluates the injury from the point of view of loss of time, loss of function and loss of potential wages. His diagnosis and prognosis may make or break an insurance underwriter. Yet, he is the one cog in the industrial accident machinery which cannot act of and by itself. If he thinks he is entitled to a higher fee for his services, he must politely put his hat in his hand and ask permission from the insurance companies. And the underwriters are in business to make money, not to pay doctors. Hospitals, surgical supply houses, pharmacists and nurses may increase their fees or charges and the higher amounts are paid by the insurance companies; the doctor is always told that there is a fee schedule in effect which limits his fee. In many cases, his services are solicited at fees 25 to 50 per cent less than the established schedule. Occasionally, in exceptional circumstances, he is paid more than the printed schedule, but these occasions are few and far between.

Ever since 1914 the Industrial Accident Commission of the State of California has maintained a schedule of medical and surgical fees as a guide to both doctors and employers. Originally brief, with only a few procedures listed, the schedule was augmented and the fees increased late in 1946, *after the California Medical Association had put in more than four years in the effort.* The increase in fees at that time was bitterly opposed by some insurance carriers; to the credit of others, some were agreeable to the adoption of fees more nearly in line with 1946 than with 1924, the date of the then existing schedule.

Again in 1948 the C.M.A. asked the Industrial Accident Commission to review the fee schedule now in effect and submitted a proposed schedule of fees believed to represent more nearly a fair level as of this time. The Commission has now tabled the Association's petition and in doing so has adopted a resolution which holds that the Commission has no "authority to enforce any medical fee schedule adopted by it." The California Medical Association does not hold the same belief, but since the Commission is the only official body which has ever published a fee schedule which has been recognized statewide, the Commission's own beliefs must prevail.

The ruling of the Industrial Accident Commission went one step beyond the tabling of the current petition. It called for the abandonment of the present fee schedule after June 30, 1949. Thus in one breath the Commission has ruled that it has no authority to enforce "any medical fee schedule" and that it will enforce the present schedule until next June 30. It seems reasonable to ask, if the Commission believes it now has no authority to enforce a fee schedule, how it can enforce the present one until next June 30.

Acting on this reasoning and the Commission's ruling, the Council of the C.M.A. has voted that a copy of the 1948 proposed schedule of fees be sent to every Association member, with the suggestion that these fees be applied in all industrial accident cases on and after February 1, 1949. If the Industrial Accident Commission has no authority to enforce a fee schedule, and no intention of doing so, chaos is the only result we can foresee when the present schedule is dropped.

The Council's move is intended to place the members of the Association in a proper position to bargain individually with insurance carriers when the lid is taken off industrial fees and the sky becomes the limit. The Association has worked long and hard to produce a schedule of fees which are believed to be fair and equitable in these cases; it is not asking anything exorbitant but it is asking that fair and just fees be recognized. The laborer is certainly worthy of his hire.

Copies of the new proposed schedule have been sent to all members. If additional copies are needed, they may be had on request. If they are used by the doctors of the state, an adjustment of industrial accident medical and surgical fees may be realized without the formality and indignity of the hat-in-hand petitioner who, like Oliver Twist, is only asking enough to sustain himself.

Hospital Districts and Acorns

The village smithy stood in the shadow of a spreading chestnut tree; this from a lowly chestnut once did grow. Innumerable events historic have transpired in and about the lordly oak, which we are told from a minute acorn grew.

It is less than five years since the kernel of the hospital district idea first appeared upon the horizon medical. The following is the growth to date in this one state alone:

Estimated number of hospital districts	36
Bond issues authorized to date	18
Bond issues rejected to date	2
District hospitals actually operating	5
District hospitals under construction (blueprints and up)	12
Hospital districts proposed	10

The small hospital for the rural community of size sufficient to support a hospital is obviously a most worthy project. The small hospital, like the large hospital, often reflects the quality and conscience of the directing board, plus the ability of the staffing physicians. It will come as a shock to many physicians to learn that in the five district hospitals now in operation there is not a single physician on the board of directors. It will come as a further shock to learn that these boards are appointed politically and elected politically. Such method of appointment and election *may* result in excellent directors, but in the absence of any medical guidance, the reverse is obviously true.

The following are the district hospitals now in operation:

Location	*Name*	*Bed Capacity*
Pittsburg	Pittsburg Community Hospital	70
Crescent City	Seaside Hospital	29
Coalinga	Coalinga District Hospital	22
Bishop	Northern Inyo Hospital	12
Hemet	Hemet Valley Hospital	25

Many physicians are aware of the fact that osteopaths in this state carry licenses often equivalent to those granted M.D.'s. Such osteopaths are especially numerous in our southern sector. Some have their own hospitals; some are on the staffs of existing hospitals and some are demanding representation on the boards of, or rights of admitting patients to, the new district hospitals. When the staff of a hospital has some control over the policies and practices in that institution, and when that staff is made up of experienced physicians, the safety of the patients is engendered. Under other circumstances, their safety may not be protected as much as fully trained physicians would prefer.

Before sponsoring the creation of additional hospital districts, or the enlargement of district hospitals now in operation, physicians might do well to pause and reflect upon the acorn.

Letters to the Editor . . .

Editor's Note: This review by an outstanding Californian of the biography of a remarkable California woman is of such general interest that it is published here in full.

PSYCHOLOGIST UNRETIRED; THE LIFE PATTERN OF LILLIEN J. MARTIN. By Miriam Allen deFord, Stanford University Press, 1948, $3.00.

Lillien J. Martin (1851-1943) was not only a psychologist of international reputation but was one of the most remarkable women that America has produced. Other women in this country (though not many) have been more eminent in science, other women have been more widely acclaimed for their social services, their philanthropies, their feminism, or their political activities, and there may be others who have remained as alert and energetic into the 90's; but I know of no one who was so outstanding in all of these respects and others.

Consider the many things in which she was first or near-first. She was the first woman teacher of physical sciences in the high schools of Indianapolis; the first woman to head a science department in a San Francisco high school; the only woman in this country who ever changed her vocation to psychology after the middle forties; the first woman permitted to study psychology at the University of Göttingen; the only woman psychologist to be awarded an honorary Ph.D. in psychology by a German university; the first woman to be elected vice-president of the American Association for the Advancement of Science; one of the first four or five women psychologists to become a starred scientist; the first woman anywhere to open an old-age counseling center; the only professor I have ever known, man or woman, who took up an entirely new field of work after reaching the age of retirement, who pursued it for more than a quarter-century, and who accomplished more important work and achieved more eminence after 65 than in all the preceding years. And what other woman ever learned to drive a car after the age of 78, or to type by the touch system after the age of 80? What other woman ever traveled alone so extensively in Soviet Russia after 80, or in practically all the countries of South America after the age of 88?

All this and much more is recounted by Miss deFord in this extremely interesting biography. There are many things in the story that were new to me, despite the fact that I was a member of the Stanford faculty for six years before Dr. Martin "retired" to her new career. I too was teaching psychology at Stanford, but at that time in another department of the university, and I was working with mental tests, which Dr. Martin then regarded as hardly a legitimate field of psychological research. Little did I dream that she would later completely reverse herself on this issue, that she would devote a good part of her last year at Stanford to mastering Binet testing procedures, and that she would use these and other psychometric devices for 27 years after her "retirement"!

Lillien Martin was a precocious child, active, energetic, and determined. She began teaching, in order to earn her college expenses, shortly after graduating from an academy at 16. At 25 she took the examination for admission to Vassar and passed with such high honors that she was awarded a four-year scholarship. From the time of her graduation at 29 until she had reached the age of 43 she was a high school teacher of science. Then some reading in psychology, plus encouragement from one of her friends, led her to burn all her bridges and to prepare for a career in psychology. She resigned her position and left for Europe, where she studied for four years at Göttingen with the distinguished psychologist G. E. Müller. Later she returned to Germany several times and studied at the University of Würzburg in 1907, at Bonn in 1908, and at Munich in 1914. It was Bonn that awarded her an honorary Ph.D. degree in 1913.

Her career as a teacher of psychology began in 1898, when she was appointed assistant professor at Stanford immediately after her return from Germany. She was then 47 years old. By the time she became professor emeritus in 1916 she had published some 20 technical articles, a majority of them in German periodicals and in the German language. The story of her work as a student in Germany and as a member of the Stanford faculty is well told in two chapters written for the biography by Dr. J. Harold Williams, who had been one of her graduate students from 1912 to 1914.

When Dr. Martin left Stanford at the age of 65 she began planning for herself an entirely new career as a private practitioner in clinical psychology, among the first in the United States to enter that now popular vocation. Within a year she had opened a clinic in her San Francisco apartment and was soon kept busy with the problems of maladjusted children. Later she opened mental hygiene clinics at two San Francisco hospitals, giving her forenoons to directing them and reserving her afternoons and evenings for private practice. In 1920, at the age of 69, she inaugurated a special clinic for the psychological examination of normal preschool children, one of the first in the country.

For several years Dr. Martin's work was almost entirely with children, but the problems of children led naturally to the problems of parents and grand-

parents, and as the years passed a larger and larger proportion of her clients were old people. It was in 1929, when she was 78, that she opened her old age counselling center, the first of its kind in America, if not in the world. This she directed for the rest of her life in close association with Mrs. Clare Moore deGruchy. During its first ten years the center had more than a thousand clients, and by 1943, the year of Dr. Martin's death, the number had risen to nearly three thousand. From the age of 78 until her death at almost 92, Dr. Martin devoted the greater part of her time to pioneering in the psychological problems of gerontology. New and ingenious methods were developed which proved highly successful in the rehabilitation of hundreds of old people by giving them new interests, new attitudes, new skills, and new hope. Her methods may have been based on "inspired common sense," as the biographer puts it, but they worked so effectively that they have been widely copied by others.

In a brief review it is impossible to give the reader an adequate idea of Dr. Martin's energy and devotion to causes. I have said nothing about her feminist and political activities, about the cooperative farm she conducted between the ages of 82 and 86 for the rehabilitation of old men, about her work with shell-shocked veterans of World War I, about her training 129 high school girls during the depression, to prepare them for positions in child care, about her long-continued work among the Chinese in San Francisco, or about her three valuable books on old age and old age counselling.

It has fallen to the lot of few people to be remembered so gratefully by so many, and for such good reasons. Her entire life was one of continuous maturation and of unceasing learning. That she never grew old must surely be explained in part by the fact that her life was so filled with devoted service to others.

LEWIS M. TERMAN

Professor of Psychology and Education Emeritus, Stanford University

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C. P. S. Fee Schedules

San Francisco

Editor, CALIFORNIA MEDICINE

Dear Sir:

The returns from the statewide survey, conducted by the California Physicians' Service fee schedule committee for the purpose of determining changes in the schedule requested by physician-members, have been tabulated.

We want the county medical societies, specialty groups and individuals who responded to our survey in such a gratifying manner, to know of the committee's appreciation, and to have the assurance that the thought and effort that we put into our recommendations to the C.P.S. board of trustees will match their own, with elimination of inequities and modernization of the schedule as the chief objectives.

Very truly yours,

W. L. BENDER, *Chairman*	F. E. JACOBS
J. C. CARR	J. G. MANNING
R. G. FREY	F. B. REARDAN
MORIS HORWITZ	S. B. SENSIBA
H. J. KIRSCHNER	H. J. TEMPLETON

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NOTICES AND REPORTS

Council Meeting Minutes

Tentative Draft: Minutes of the 357th Meeting of the Council

San Francisco, December 18-19, 1948.

The meeting was called to order by Chairman E. L. Bruck at 9:30 a.m., Saturday, December 18, 1948, at the Fairmont Hotel.

Roll Call:

Present were President Askey, President-elect Kneeshaw, Speaker Alesen, Vice-Speaker Charnock, Councilors Ball, Crane, Henderson, Anderson, Ray, Bruck, Lum, Pollock, Green, Cherry, MacLean, Shipman, Bailey and Thompson; Councilors ex-officio, Secretary Garland and Editor Wilbur.

Absent (illness): Councilor Hoffman. A quorum present and acting.

Present by invitation were Dr. Dwight H. Murray, legislative chairman; John Hunton, executive secretary; William P. Wheeler, assistant executive secretary; Howard Hassard, legal counsel; Ben H. Read, executive secretary of the Public Health League of California; Ed Clancy, field secretary; Clem Whitaker, public relations counsel; county society executive secretaries Joseph Donovan of Santa Clara County, Frank J. Kihm of San Francisco County, Rollen Waterson of Alameda County, Stanley K. Cochems of Los Angeles County and Glen Gillette of Fresno County.

Present by invitation during a portion of the meeting were Dr. John W. Cline, chairman of the California delegation to the A.M.A.; Dr. Frederick N. Scatena, secretary, and Dr. William F. Quinn, president of the State Board of Medical Examiners, and Dr. Lowell S. Goin, president of the Board of Trustees of California Physicians' Service.

1. *Minutes:* Minutes of the 356th meeting of the Council, held October 30-31, 1948, were approved.

2. *Membership:*

(a) A report of membership as of December 17, 1948, was received. This showed 9,153 active members, 83 Associate members and 455 members listed as delinquent because of non-payment of dues. It was pointed out that the number of delinquent members represented a readjustment of memberships following the end of the allowable period of dues waivers for members in military service, that many of these members had not returned to the state following their military service. It was agreed that the Committee on Membership and Organization should be advised of this fact and requested to make mention of it in its annual report.

(b) On motion duly made and seconded, 17 members whose 1948 dues had been received since the previous Council meeting were reinstated as active members.

(c) On motion duly made and seconded in each case, 10 applicants were elected to Retired Membership. These are:

H. Robert Dykes, Sr., Kern County.
J. C. Drake, Fresno County.
W. F. Cornett, Los Angeles County.
William Edler, Los Angeles County.
Claude G. Greengo, Los Angeles County.
Louis K. Guggenheim, Los Angeles County.
James B. Luckie, Los Angeles County.
L. A. J. LaMotte, Los Angeles County.
F. L. McLeod, Los Angeles County.
John V. Craviotto, San Joaquin County.

(d) On motion duly made and seconded, Dr. E. M. Wilder of Sacramento County was elected to Life Membership.

(e) On motion duly made and seconded in each case, Philip M. Morgans of Orange County and Frederick A. Franke of San Francisco County were elected to Associate Membership.

(f) On motion duly made and seconded, a reduction of dues because of illness was granted to Newell Moore of Orange County.

Attention was called to a conflict between the provisions of Article IV, Section 1(f) and Article XI, Section 1(c) of the Constitution, as amended 1948. The earlier section provides for the election, at the discretion of the Council, of inactive members

who shall pay no dues and the latter section for the reduction of dues in special cases. On motion duly made and seconded, it was voted that the intent of the Council was to consider applications in such cases as coming within the scope of Article XI, section 1(c) and to consider the other article dormant at this time.

(h) It was regularly moved, seconded and voted that the provisions of Article XI, section 1(b) of the Constitution, relating to the waiver of dues for war service, be made applicable to members serving in the military reserves who are called into active military service.

3. *Financial:*

(a) A report of bank balances as of December 16, 1948, was received and ordered filed.

(b) A balance sheet as of November 30, 1948, was received and ordered filed.

4. *Memorial to Philip K. Gilman:*

The executive secretary reported that the Stanford Medical School has created a "Philip K. Gilman Memorial Revolving Fund" and that the Association's contribution of $1,000 to that fund has been sent. The fund will be augmented by other contributions and will be used as a self-renewing loan fund to enable graduate students, especially in surgery, to continue their studies where otherwise they might be compelled to discontinue them because of lack of finances.

5. *New Mexico Physicians' Service:*

A letter from New Mexico Physicians' Service was read, in which request was made for technical assistance from California in evaluating and placing on a sound basis several operating procedures of N.M.P.S. Inasmuch as the Association does not maintain a staff qualified in such matters, it was regularly moved, seconded and voted to refer this request to California Physician's Service. It was also agreed that Dr. Paul R. Hawley of Associated Medical Care Plans be advised of this action and that the C.P.S. representatives be urged to visit New Mexico at the same time Dr. Hawley plans to be there on other business.

6. *Cancer Commission:*

1. Dr. John W. Cline reported for the Cancer Commission, outlining the procedure whereby 40 per cent of funds collected in the public drives goes to national headquarters for research purposes and 60 per cent is retained for use in the state and county organizations. In addition, he asked the Council to establish a policy on: (a) The retention of a full-time medical director for the Cancer Commission and the California division of the American Cancer Society (b) the formation of county branches of the American Cancer Society where such branches do not now exist, and (c) the establishment of fund-soliciting organizations in counties where no branches of the A.C.S. exist.

(a) On motion duly made and seconded, it was voted that the duties of the medical director of the Cancer Commission and the California division of the American Cancer Society did not appear to require full-time work and that the medical director's salary should be revised accordingly, one-half to be paid by the Cancer Commission if funds were not otherwise available.

(b) On motion duly made and seconded, it was voted that a letter be sent to those county medical societies where county branches of the California Division, American Cancer Society, do not exist urging the formation of county branches.

(c) On motion duly made and seconded, it was voted that county branches of the Women's Field Army of the American Cancer Society should not be formed for the solicitation of funds in counties without A.C.S. branches unless the county medical society has approved the formation of a county branch of A.C.S.

2. Dr. Cline also brought up the question of publishing the Cancer Studies of the Cancer Commission, which have been running in article form in the official journal. Mention was made of the fact that the state printer might possibly be authorized, through the State Department of Public Health, to share in the cost of binding these studies. On motion duly made and seconded, it was voted that the Cancer Studies of the Cancer Commission should be published by the Association. (An amendment to provide for the state printer sharing in this work was defeated.)

3. Dr. Askey reported the resignation of Dr. Orville Meland as a member and as Southern California secretary of the Cancer Commission. He tendered the appointment of Dr. Ray B. McCarty of Riverside to succeed Dr. Meland as a member and Dr. Eric Larson of Los Angeles as Southern California secretary, and the Council confirmed these appointments.

7. *Advisory Planning Committee:*

Mr. Hunton reported that copies of the Brookings Institution publication, *The Issue of Compulsory Health Insurance*, had been purchased and would be sent to every secondary school and college library in the state as a reference work.

Mr. Hunton reported on the recommendation of the committee that Ed Clancy, field secretary of the Association, and Glen Gillette, executive secretary of the Fresno County Medical Society, be appointed as members of the committee. On motion duly made and seconded in each instance, they were voted appointment.

Mr. Clancy presented copies of a proposed manual on public relations to be sent to all members, to the press and to members of the Legislature. After study of the manual the Council voted (December 19) that this manual be printed with each member's name printed on the cover and distributed at the earliest possible date.

8. *Other Organizations:*

(a) Sister Kenny Foundation—A report from a committee of the San Francisco County Medical Society which has been reviewing this organization with a view toward cooperation was read and it was

decided that no action by the Council was indicated at this time. It was also agreed that the special Council committee to review the status of voluntary medical welfare organizations (Cline, chairman; Wilbur, MacLean, Askey and Alesen) be urged to draw up general standards for a basis of approval of such groups and suggested policies for same.

(b) American Public Health Association—Dr. Bruck read a report rendered by Dr. William Palmer Lucas of San Francisco, Council appointee to attend the annual meeting of this organization. The report showed that a new section on medical care had been voted by a vote of more than three to one and that its proponents were dominant in the affairs of the meeting. On motion duly made and seconded, it was voted to file this report and to thank Dr. Lucas for his services.

(c) A letter from the Alameda County Medical Association, requesting clarification on the duties of health officers, was read. Mr. Rollen Waterson, Dr. Donald Lum and a representative of the State Department of Public Health were requested to submit their views in writing to the Secretary, who was then to forward this material to Dr. Cline's committee for preparation of a report for the Council.

9. *Legal Department:*

Mr. Hassard reported on a meeting of the hospital and clinic committee of the Welfare Council of Greater Los Angeles, at which it was voted to urge legislation to permit the employment of physicians on a salary basis by sanatoria and other hospitals which furnish medical care on a charity basis and which, under a recent ruling of the State Attorney General, might be unable to provide care without enabling legislation. On motion duly made and seconded, it was voted that a committee be appointed (Kneeshaw, Askey, Hassard) to prepare a resolution on this subject.

The committee submitted the following resolution, which was moved, seconded and adopted:

Resolved, That the California Medical Association favors an amendment to the Medical Practice Act empowering the State Board of Medical Examiners, at its discretion, to approve employment of doctors of medicine by such sanatoria, clinics and other institutions as are found by the Board to be operated and conducted exclusively for eleemosynary and charitable purposes, and which make no charge to patients for medical services rendered.

Drs. Marshall L. Skaggs and William B. Neff, anesthesiologists, appeared before the Council to urge consideration of the position of their specialty in consideration of the solution of the problem of employment of physicians by hospitals. It was pointed out that a state supreme court ruling in a case governing employment of anesthetists by hospitals indicated the need for deferring action on their specialty until conclusion of negotiations regarding pathologists and others.

Mr. Hassard reported that a specimen contract between hospitals and radiologists had been drawn and the Council voted to appoint a special committee to consider this. This committee reported (December 19) that it approved the specimen contract submitted and it was regularly moved, seconded and voted that the committee's (Garland, chairman; Pollock, Alesen) report be accepted.

10. *Delegates to American Medical Association:*

(a) Dr. John W. Cline, chairman of the Association's delegation to the A.M.A., reported on the steps taken by the A.M.A. at the St. Louis Interim Session, November 30-December 1, 1948, including:

(1) Transfer of the Washington office from the Council on Medical Service to the Board of Trustees;

(2) Establishment of a Planning Committee consisting of four members of the Board of Trustees, three members of the House of Delegates and three officers (ex-officio), to handle A.M.A. planning to meet threats of political medicine.

(3) Expansion of the Washington office by additional personnel, space, etc.

(4) Appointment of a committee of the A.M.A. Board of Trustees to furnish direct supervision over the Washington office; and

(5) Establishment by the A.M.A. of an assessment of $25 per active member to furnish a fund for public educational purposes.

Other members of the California delegation pointed out that Dr. Cline was one of the three members of the House of Delegates appointed to the planning committee and that Dr. Dwight H. Murray of California, a member of the Board of Trustees of the A.M.A. and California chairman of Public Policy and Legislation, had been named chairman of the Trustees' committee to supervise the Washington office. It was also pointed out that the public relations firm of Whitaker and Baxter, public relations counsel for the C.M.A., had been selected to establish the public educational campaign.

On motion duly made and seconded, it was unanimously voted that the Council is deeply grateful to the Association's Delegates to the A.M.A. under the able chairmanship of John W. Cline for the fine work achieved at the A.M.A. St. Louis meeting and wishes to spread its commendation on the minutes of this meeting.

(b) Dr. Murray reported that the A.M.A. had requested the services of James J. Boyle, Washington representative of the United Public Health League, as a staff member of its Washington office and that he, as chairman of the board of directors of the League, had approved this transfer, subject to the approval of the directors of the League.

(c) It was moved by Crane, seconded by Alesen, that the California Medical Association pay to the American Medical Association the full amount of the assessment of $25 per member for all A.M.A. members in California. After considerable discussion, it was regularly moved, seconded and voted that this motion be tabled.

11. *Public Relations:*

Mr. Whitaker reported that 95,000 signatures have been validated for an initiative petition which would ban all use of animals in medical research in California and that the proponents of the measure

have until January 20, 1949, to validate and file an additional 110,000 signatures to place the measure on the ballot.

Mr. Whitaker also reported on the staging of "California Caravan," the Association's radio program from San Francisco on December 5, in honor of the Irwin Memorial Blood Bank of one of the component county medical societies and on the occasion of the annual meeting of the Radiological Society of North America in California.

12. *Public Policy and Legislation:*

(a) Drs. William F. Quinn, president, and Frederick N. Scatena, secretary, appeared for the Board of Medical Examiners and presented a series of amendments to the Business and Professions Code which the Board wishes to see introduced in the 1949 Legislature. Mr. Hassard reported that a committee of medical school deans was working along similar lines, particularly as regards educational requirements. After discussion it was regularly moved, seconded and voted that a committee be appointed to meet with the Board of Medical Examiners and the medical school deans to work out proposed legislation. The committee was named as Drs. L. R. Chandler and Dwight H. Murray and Mr. Hassard.

It was regularly moved, seconded and voted to express the thanks of the Council to Drs. Quinn and Scatena for conferring with the Council on these matters.

(b) Councilor MacLean asked that the Council approve a proposed amendment to Section 11493 of the Insurance Code, to permit non-profit hospitalization corporations to indemnify members against the cost of professional services outside of hospitals. It was regularly moved, seconded, and voted that a special committee consider this matter. (The committee, MacLean, Murray, Hassard and Goin.) The committee reported December 19 that it agreed to the proposed amendment, provided changes were made as follows: (1) hospital care, and indemnification for any and all professional services to be separated into two different sections; (2) hospital care to be authorized under present capital and reserve provisions of Chapter 11a; (3) medical and surgical indemnity to be authorized only if the Chapter 11a plan meets the capital and reserve requirements of a disability insurance company under the regular provisions of the Insurance Code.

(c) Dr. Dwight H. Murray, chairman of the Committee on Public Policy and Legislation, reported that Governor Warren would probably introduce health insurance legislation in the 1949 Legislature and that the committee would follow previous instructions to oppose such measures.

He also reported that the California State Nurses Association had asked support for a measure it proposed to introduce to provide training and licensure for practical nurses. It was pointed out that a copy of this measure had not yet been furnished by the nurses and that efforts to confer with them on this proposed bill had not been successful. It was agreed that if further efforts to meet with nurse officials on this bill failed, the legislative committee should draft a bill of its own along these lines and present it to the Executive Committee for confirmation.

Mr. Hassard reported on a hearing by the Senate interim committee on professional and vocational standards, which held a public hearing on December 13, at which time committee members announced their intention of introducing legislation to provide penalties for the giving or accepting of rebates for the reference of patients.

Mr. Hassard also reported on several problems associated with hospital construction under terms of existing laws. It was agreed that further discussion would be held following the Council's recess.

13. *Recess:*

At this point, 6:00 p.m. December 18, 1948, it was voted to recess until 9:30 a.m., December 19, 1948.

14. *Reconvention:*

The meeting was called to order by the chairman at 9:30 a.m., Sunday, December 19, 1948, at the Fairmont Hotel, San Francisco.

Roll Call.

All members of the Council were reported present on roll call. In addition, all those invited and present on December 18 were present, except Drs. Cline, Quinn, and Scatena and Mr. Joseph Donovan. Present by invitation during a portion of the meeting were the members of the Board of Trustees of California Physicians' Service and Mr. William M. Bowman, Executive Director of C.P.S.

A quorum present and acting.

15. *Public Policy and Legislation:*

Dr. Murray proposed that the Association adopt a positive legislative program to include: (a) licensure of laboratories using animals in their work; (b) training and licensure for practical nurses; (c) support for anti-rebating legislation; (d) support or advocacy of amendments to the Medical Practice Act in line with recommendations of the Board of Medical Examiners, medical school deans and Association representatives; and (e) support of the voluntary movement to provide health insurance. On motion duly made and seconded, the Council voted to adopt this as the official program of the Association for a positive legislative program for 1949.

Dr. Askey reported on meetings he and Dr. Alesen have held with representatives of the California Osteopathic Association and it was regularly moved, seconded and voted that they continue such meetings and report to the Executive Committee in January.

16. *California State Department of Public Health:*

(a) Dr. Wilton L. Halverson, State Director of Public Health, appeared before the Council and discussed in detail the recommendations proposed to be made by the committee of the Department which has been studying the problem of chronic diseases. Various suggestions were offered and ac-

cepted for the proposed report and the report as amended was regularly moved, seconded, and voted approval.

(b) Dr. Halverson explained that a successor was needed for the late P. K. Gilman as director of the Bureau of Hospitals of the Department and that civil service requirements must be met. He asked for suggestions for this post.

(c) Dr. H. G. MacLean reported on replies received to inquiries regarding the metropolitan area x-ray survey for tuberculosis proposed by the U. S. Public Health Service. In cities where these surveys have been made, it appears there is adequate provision for the reference of positive cases to private physicians and that there is cooperation between the physicians and the U.S.P.H.S. staff. On motion duly made and seconded, it was voted to approve the making of such a survey in selected metropolitan areas of California.

In this connection, it was pointed out that the reliability of such surveys is questioned by some authorities and, further, that in Minneapolis, where such a survey has been made, 40 per cent of those people discovered to have active tuberculosis were found one year after the survey to have refused proffered hospitalization. Dr. Halverson stated that legislation would be offered to strengthen the position of health officers in requiring hospitalization in such cases.

(d) Dr. Bruck read the recommendations of the heart committee for the chronic disease survey and these were approved.

17. *American Medical Association Assessment:*

On motion by Cherry, seconded by Shipman, it was voted to lift from the table the motion presented the previous day (item 10(c) above) relative to payment to the American Medical Association of the sum of the A.M.A. assessment of $25 for each A.M.A. member in California. It was pointed out that this payment should be considered as a gift by the California Medical Association on behalf of its members.

It was regularly moved and seconded that the California Medical Association make a gift, from available funds, to the American Medical Association in the amount of $25 for each active member of the Association. The motion was carried by majority vote, Councilors Thompson, Anderson and Pollock requesting that their negative votes be recorded. The chairman did not vote.

The Executive Secretary requested instructions as to the manner in which this gift should be forwarded to the A.M.A. It was moved and seconded that the Secretary send a check to the American Medical Association in the sum of $25 for each active member of the Association as of December 1, 1948. Mr. Hassard suggested that the Secretary and Chairman of Board of Trustees of the American Medical Association be contacted to insure the acceptance of this payment as a gift from the Association and in return grant a remission of the $25 assessment to A.M.A. members in California; this suggestion was adopted by the mover and seconder and incorporated in the original motion. The augmented motion was then adopted by majority vote. Councilor Thompson asked that his negative vote be recorded; the chairman did not vote.

It was pointed out that the Association did not have on hand sufficient funds to carry out the motion just passed but that such funds would have to be made available to the Association by the Trustees of the California Medical Association. The Council voted to recess to permit the Trustees of the California Medical Association to hold a meeting.

(The Trustees of the California Medical Association voted to transfer $228,825 to the California Medical Association in their meeting, Drs. Thompson, Anderson, MacLean, Lum, Bruck and Pollock asking that their negative votes be recorded.)

18. *Industrial Accident Commission:*

Dr. Donald Cass, chairman of the Committee on Industrial Practice, reported that the Industrial Accident Commission of the State of California had denied the petition of the Association for adoption of a revised schedule of fees to apply in industrial accident cases. The denial was made on grounds that the Commission lacked specific legal authority to make and enforce a schedule of fees; at the same time, the Commission's resolution stated that the existing fee schedule would be considered as in force only until June 30, 1949. It was pointed out that if the Commission lacked authority to make and enforce a fee schedule, it did not have authority to enforce an existing fee schedule for any additional period of time. It was moved, seconded and unanimously voted that the schedule of fees presented to the Industrial Accident Commission be adopted as a recommended schedule for use by all Association members, that copies of it be sent to all members with the suggestion that it be put into effect by all members on February 1, 1949.

19. *Public Policy and Legislation:*

Mr. Hassard reported the suggestion of Dr. Murray that the Council appoint a Chronic Disease Commission and recommend to the House of Delegates that such a commission be regularly maintained. It was regularly moved, seconded and voted that such action be taken.

It was reported that a committee was to meet December 21 to consider the introduction of legislation to provide for the licensing and inspection of laboratories using animals, to insure proper handling of such animals and to prevent illicit use of animals. The Association has been invited to be represented at this meeting and it was agreed that a representative be named.

20. *Secretarial Conference:*

The Secretary reported that the dates of February 4 and 5, 1949, set for the Secretarial Conference, were in conflict with other meetings. It was regularly moved, seconded and voted that the Secretary be empowered to set this meeting later in the year.

21. *State Department of Education:*

A request for the naming of representatives to participate in conferences on Rural Life and Education, sponsored by the California State Department of Education, was read and it was regularly moved, seconded and voted that such representatives be named.

22. *Kings County Health Officer Request:*

A letter from the health officer of Kings County was read, asking suggestions for selection and method of working with neuropsychiatrists in cases coming before the juvenile court. It was agreed that a reply be sent, suggesting that the county confer with a private neuropsychiatrist as a consultant and that the families of the juveniles pay for private services if they were able, otherwise the juvenile court to assume the costs.

23. *California Physicians' Service:*

Dr. Lowell S. Goin, president of the Board of Trustees of C.P.S., took the chair and introduced Trustees C. L. Cooley, H. Randall Madeley, Donald Cass and A. E. Moore, Mr. C. Ray Miller and Mr. Ransom M. Cook, and Mr. William M. Bowman, executive director.

Mr. Bowman reported that C..P.S. as of November 30, 1948, had more than $1,000,000 cash on hand and a unit stabilization fund of $745,705.90. He also explained a simplified billing form which will be distributed to member physicians in March.

Dr. Madeley reported that the Board of Trustees had voted to increase the unit value to $2.15, effective January 1, 1949, an increase of about $700,000 annually. Dr. Cooley reported 9,500 physician members and about 700,000 beneficiary members of C.P.S. and other Trustees spoke on Blue Cross cooperation, liaison with county medical societies and a survey of members of one county society to determine their reaction to C.P.S. The survey report showed a favorable view of voluntary medical care insurance among the physicians polled.

24. *Time and Place of Next Meeting:*

It was agreed that the next meeting be at the call of the chairman, the dates of February 19 or February 26, 1949, being suggested.

Adjournment.

L. HENRY GARLAND, M.D.
Secretary

In Memoriam

BASCOM, FRANCIS SENTER. Died in Piedmont, December 23, 1948, aged 46, of a heart attack. Graduate of Harvard Medical School, Boston, 1929. Licensed in California in 1930. Doctor Bascom was a member of Alameda County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

✤

DUNN, THOMAS BALFOUR. Died in Fresno, December 28, 1948, aged 62. Graduate of the University of California Medical School, Berkeley-San Francisco, 1916. Licensed in California in 1916. Doctor Dunn was a member of the Alameda County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

✤

HAWLEY, CARL JOHN. Died in Van Nuys, December 26, 1948, aged 44. Graduate of the University of Southern California School of Medicine, Los Angeles, 1935. Licensed in California in 1935. Doctor Hawley was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

✤

HOLEMAN, GEORGE STEVENSON. Died in San Jose, December 8, 1948, aged 61. Graduate of the University of Oregon Medical School, Portland, 1921. Licensed in California in 1921. Doctor Holeman was a member of the Alameda County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

JONES, ELLIS WILLIAM. Died in Los Angeles, December 4, 1948, aged 64. Graduate of Harvard Medical School, Boston, 1911. Licensed in California in 1913. Doctor Jones was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

✤

KIMBALL, ARCHIE PERCIVAL. Died in San Diego, December 2, 1948, aged 63, of cancer of the right ureter. Graduate of Creighton University School of Medicine, Omaha, Nebraska, 1908. Licensed in California in 1944. Doctor Kimball was a member of the San Diego County Medical Society, the California Medical Association, and the American Medical Association.

✤

KIRK, JOSIAH HERMAN. Died in Palo Alto, December 8, 1948, aged 69. Graduate of the Cooper Medical College, San Francisco, 1906. Licensed in California in 1906. Doctor Kirk was a member of the Santa Clara County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

✤

SPAULDING, JOHN M. Died in Los Angeles, November 13, 1948, aged 67. Graduate of the University of Louisville School of Medicine, Louisville, Kentucky, 1907. Licensed in California in 1923. Doctor Spaulding was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

✤

WHELPLY, FRANK RAYMOND, JR. Died in Long Beach, November 24, 1948, aged 55. Graduate of the University of Buffalo School of Medicine, Buffalo, New York, 1918. Licensed in California in 1948. Dr. Whelply was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

NEWS and NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

The blood bank of the Alameda County Medical Association recently moved into newer and larger quarters at 354 Hobart Street, Oakland. Increasing demand for whole blood at hospitals served by the bank necessitated removal from Alta Bates Hospital where facilities were overloaded. The new quarters, which are specifically designed for blood banking, are capable of handling three times as many donors as the former location.

BUTTE-GLENN

Dr. Concessa Graviotto of Oroville has been elected president of the Butte-Glenn Medical Society for 1949, Dr. C. K. Hubbard, vice-president, and Dr. J. O. Chiapella, secretary-treasurer.

* * *

Dr. William L. Adams, Jr., of Fresno, has been elected president of the Fresno County Medical Society for 1949, succeeding Dr. K. D. Luechauer. Dr. C. P. Doane was named president-elect to succeed to the presidency in 1950. Other officers elected for 1949 are Dr. W. N. Knudsen, first vice-president; Dr. C. S. Mitchell, secretary-treasurer; Dr. D. H. Trowbridge, librarian. Dr. Luechauer was elected to the board of governors of the society; Dr. E. E. Hawley, delegate to the California Medical Association, and Dr. W. H. Gilliatt as alternate.

LOS ANGELES

Dr. Benjamin M. Frees was named president of the Los Angeles County Medical Association for 1949 in the annual balloting-by-mail election held late in 1948. Dr. Clarence J. Berne was elected vice-president, and Dr. Richard O. Bullis was reelected secretary.

In addition, the Committee on Elections declared the following elected to office: Trustee (five-year term) Dr. William H. Leake; Councilorship No. 1 (three-year term) Drs. Wilbur Bailey, Elmer J. Ball, Frank G. Crandall, Jr., Eugene F. Hoffman, and J. Lafe Ludwig; Councilorship No. 6 (three-year term) Dr. Charles H. Cowgill; Councilorship No. 7 (three-year term) Dr. Ralph T. Smith; Councilorship No. 8 (three-year term) Dr. Lawrence M. Hill.

* * *

Appointment of Dr. Lowell S. Goin of Los Angeles to the National Advisory Cancer Council for a three-year term was announced recently by Surgeon General Leonard A. Scheele of the U. S. Public Health Service. As a member of the Council, Dr. Goin will help formulate plans and policies of the National Cancer Institute and review applications from non-federal institutions for aid in cancer control and research.

* * *

At the annual election of officers of the Los Angeles Society of Allergy (a section of the Los Angeles County Medical Association) the following officers were elected for 1949: Dr. Hyman Miller, president; Dr. Frank G. Crandall, Jr., vice-president; Dr. M. Coleman Harris, secretary-treasurer. The new officers were installed at the January meeting of the society.

RIVERSIDE

At the annual installation meeting of the Riverside County Medical Society held last month at Soboba Hot Springs, Dr. Harold M. F. Behneman was installed as president and Dr. Phillip Corr as vice-president. Dr. Cecil Lord retained the post of secretary-treasurer.

SAN FRANCISCO

At the sixteenth annual meeting of the Stanford Medical Alumni Association, Dr. Frank Gerbode was elected president, Dr. Henry Newman vice-president, and Dr. Lowell Rantz secretary-treasurer.

SONOMA

At a recent meeting of the Sonoma County Medical Society, Dr. Alexis Maximov of Santa Rosa was installed as president for 1949 and Dr. William J. Newman of Sonoma was named president-elect. Other officers elected were: Dr. William J. Rudee, Santa Rosa, secretary-treasurer; Dr. Clifford M. Carlson and Dr. Raimond F. Clary, both of Santa Rosa, members of the executive committee. Dr. Maximov and Dr. Donald C. Oakleaf were elected delegates to the annual meeting of the California Medical Association, with Dr. Cuthbert M. Fleissner and Dr. Roscoe L. Zieber as alternates.

TULARE

Dr. W. B. Parkinson of Porterville has been elected president of the Tulare County Medical Society to serve for the coming year. Dr. J. E. Feldmeyer of Exeter was elected vice-president, and Dr. Wiley Zinc of Tulare, secretary-treasurer. Dr. Parkinson and Dr. W. A. Winn were elected to represent the county society as delegates to the California Medical Association, with Dr. S. S. Ginsburg and Dr. J. H. Brady of Visalia as alternates.

YOLO

Dr. Emery Leivers of Woodland has been elected president of the Yolo County Medical Society for 1949. Dr. Frank J. Peter, Woodland, was elected vice-president, and Dr. Charles McKinney, of Davis, secretary-treasurer.

GENERAL

At the annual meeting of the Radiological Society of North America in San Francisco in December, Dr. Lowell S. Goin of Los Angeles and Dr. Edward Chamberlain of Philadelphia (formerly a member of the faculty of Stanford School of Medicine), were awarded gold medals by the society in recognition of conspicuous service to science. The presentation was made by Dr. L. Henry Garland, San Francisco, outgoing president.

New officers of the society for 1949 include Drs. Edgar McNamee, Cleveland, president; Warren Furey, Chicago, president-elect; Laurence Robbins, Boston; Earl Miller, San Francisco, and James Collins, Indianapolis, vice-presidents;

Howard Doub, Detroit, librarian; and Eugene Prendergrass, Philadelphia, chairman of the board of directors.

* * *

At a recent meeting of the Southern California Chapter of the International College of Surgeons, Dr. Rafe Chaffin, Los Angeles, was elected president, Dr. Charles W. Shirey, North Hollywood, vice-president, and Dr. J. James Duffy, Los Angeles, secretary-treasurer.

* * *

More than 52,000,000 people, or well over one-third of the total population of the United States, are now protected under some form of voluntary hospital expense insurance, while voluntary surgical expense and medical expense plans, newer types of protection, cover approximately 26,000,000 and 9,000,000 respectively, according to a report by John H. Miller, chairman of a committee formed by a number of insurance companies which has just completed a survey of voluntary accident and health plans in this country. The figures include not only those individuals protected by insurance companies but also those covered by the Blue Cross and all other types of organizations providing this protection.

* * *

An attack by osteopaths on the validity of medical licensure laws in Kansas has been thwarted, at least temporarily, by a recent ruling of a special three-judge federal court.

In an action brought by osteopaths in the state, with the aid of the American Osteopathic Association, to have set aside the state's restrictions governing the practice of osteopathy, the court unanimously ruled against the plaintiff. In denying the petition, the court said, in part:

"It is peculiarly within the province of the State of Kansas to classify and regulate the right to pursue a calling or profession having to do with the public health. The nature of the classification and the requisite qualifications for license to pursue a profession within such classification must largely depend upon the judgment of the state."

Observers believe the plaintiff will appeal to the United States Supreme Court for final ruling.

* * *

Federal government grants totaling $9,244 for research in medical and related scientific fields were made recently to three California institutions. California Institute of Technology, Pasadena, was awarded $6,069 for study of the polarization state of nervous tissue; University of California at Berkeley, $2,635 for research on antagonism to transplants as influenced by the physiological need of the host for the engrafted tissue; University of Southern California, $540 for studies on the action of drugs and metabolites on the isolated heart.

* * *

Of some 162,000 California veterans given medical treatment for service-connected disabilities or diseases in 1948, about half were treated by physicians in private practice under the "home town" medical care program, with the remainder handled by Veterans Administration staff physicians in VA out-patient clinics, according to a report by the Veterans Administration. For 81,163 patients treated by private physicians under this program, the average number of treatments per patient was 4.84. Among the 81,323 patients given medical care at VA clinics, the number of subsequent visits was considerably lower, with an average of only two treatments per patient.

Private physicians were paid $1,452,606 for 393,300 treatments under the home town plan, or an average of $3.69 per treatment. Figures as to cost of treatments given by VA staff physicians are not available, the agency said, as there is no way of computing charges on a comparable basis.

Medical Films - Annual Session

Facilities will be available for showing 16 mm. sound or silent films at the 1949 Annual Session of the California Medical Association to be held in Los Angeles May 8 to 11. To select films suitable for showing and to make up a program for their showing, a special committee has been named by the Committee on Scientific Work.

Any member who has one or more films available for this showing should contact Dr. Conrad J. Baumgartner, 409 N. Bedford Drive, Beverly Hills. Films should be shipped to Dr. Baumgartner for viewing by the committee. They should be sent as soon as possible and in no case later than April 1, 1949.

INFORMATION

Poliomyelitis in California - 1948

The incidence of poliomyelitis in California for 1948 as reported to the State Department of Public Health has well exceeded that of previous years. In total numbers of reported cases, the figure for 1948 has surpassed that of 1934, the previous highest recorded incidence, by more than two thousand cases. Even with the sharp increase of population in the state in recent years, the case rate per 100,000 population for 1948 exceeded that of 1934 (see Table 1).

TABLE 1.—*Poliomyelitis—Reported Cases and Case Rates for Selected Epidemic Years 1934-1948*

Year	*Cases*	*Case Rates**	*Estimated Population*
1934	3,396	54.8	6,077,046
1939	973	14.3	6,815,130
1943	2,650	34.0	7,795,000
1946	2,164	23.4	9,250,000
1948	5,796	58.6	9,894,000

*Case rate per 100,000 population.

Cases of poliomyelitis are reported throughout the year in California, although there is the usual seasonal rise in incidence during the summer and early fall. Incidence peaks have occurred as early as June and as late as October. Following the 1946 epidemic with its peak in August and a total of 2,164 cases for that year, a high endemic level was maintained throughout 1947 and a total of 865 cases was reported for that year. At the beginning of 1948, the lowest number of cases within the previous 20 months was reported for January (13 cases). For the next two months, although the number of cases was not great, the rate of increase was showing a precipitous climb. However, the epidemic curve flattened out somewhat in April only to begin a steep upward swing again in May. A continuing increase in cases occurred in the following months, June showing approximately three times as many cases as May, and July cases trebling the June total. In August there were almost half again as many cases reported as in July, while the peak of the epidemic was reached in September with 1,437 cases reported for that month. The monthly totals of cases for August, September, October, November and December, 1948, were the highest on record for these months (see Table 2).

Of the 58 counties in the state, four did not report a single case of poliomyelitis for 1948. These counties are Alpine, Del Norte, San Benito and Sierra. Southern California, south of the Tehachapi mountain range, accounted for 3,850 cases or approximately 66 per cent of the total reported, while Los Angeles County reported by far the greatest number (3,134). The San Francisco Bay Area including the six counties, Alameda, Contra Costa, Marin, San Francisco, San Mateo, and Solano, reported 761 cases or approximately 13 per cent of the total, while the central valley counties, some 16 in number, from Kern County in the south to Tehama in the north, accounted for another 13 per cent (775 cases). The remaining 410 cases (8 per cent) were reported for the most part from among the central and northern coastal counties, with a few from those counties along the Sierra Nevada mountain ranges.

The distribution of poliomyelitis cases by counties by month of report (January-December) 1948 is shown in Table 3 (on following page).

Table 4 shows the percentage distribution of reported cases of poliomyelitis by age groups for the year. A similar distribution is made of 261 poliomyelitis deaths recorded from January to October, 1948.

TABLE 4.—*Distribution of Poliomyelitis Cases and Deaths Among Various Age Groups*

Age Group	*Cases Jan.-Dec. No.*	*Per Cent*	*Deaths Jan.-Oct.* No.*	*Per Cent*
Under 1 yr.	168	2.9	6	2.3
1-4	1,697	29.4	39	14.9
5-9	1,588	27.5	41	15.7
10-14	680	11.8	35	13.4
15-19	367	6.4	24	9.2
20-24	381	6.6	40	15.3
25-29	430	7.4	31	11.9
30-34	252	4.3	30	11.5
35-44	180	3.1	13	5.0
45-54	22	0.4	2	0.8
55 and over	10	0.2	.....	.....
Total with ages	5,775	100.0	261	100.0
Not stated	21			
Totals	5,796		261	

*Data on deaths for November and December not yet available.

TABLE 2.—*Poliomyelitis—Seasonal Distribution of Reported Cases by Month of Report, Selected Epidemic Years 1934-1948**

Years	*Total*	*Jan.*	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
1934	3,396	25	27	18	38	314	1,193	767	430	225	182	103	74
1939	973	27	15	18	23	53	253	473	533	620	308	228	99
1943	2,650	4	4	3	6	29	48	150	257	189	138	105	40
1946	2,164	54	20	24	19	34	67	198	693	562	303	111	79
1948	5,796	13	8	23	9	71	225	671	938	1,437	948	921	532

*Civilian cases only.

The age pattern shows a majority of cases (60 per cent) in the group under ten years of age with the 1-to-4 year age group containing the highest number of cases and the 5-to-9 year age group the next highest. In the groups above the age of ten, 18 per cent of the cases fall into the 10-to-19 age group, whereas over 22 per cent are in patients 20 years of age or older. The age distribution of the recorded deaths reveals that 44.5 per cent fell into the age group 20 and over, whereas only 22 per cent of cases fell into this group.

No attempt has been made to present a breakdown of cases according to clinical patterns because of incomplete data at this time. A more comprehensive report will be made in the near future as soon as complete data are at hand.

TABLE 3.—*Poliomyelitis Distribution Among Counties in 1948*

County	*Total*	*Jan.*	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Alameda	185	....	1	5	....	1	1	8	15	37	49	42	26
Alpine	....	....	....	....	....	....	....	....	....	....	....	....	....
Amador	2	....	....	....	....	....	....	....	....	....	....	....	2
Butte	8	....	....	....	....	....	....	3	....	3	2	....	....
Calaveras	....	....	....	....	....	....	....	....	....	....	....	....	....
Colusa	1	....	....	....	....	....	....	....	....	....	....	1	....
Contra Costa	111	....	....	....	2	1	1	2	16	29	24	21	15
Del Norte	....	....	....	....	....	....	....	....	....	....	....	....	....
El Dorado	8	....	....	....	....	....	....	....	3	1	....	4	....
Fresno	115	....	....	....	....	2	9	13	15	24	16	15	21
Glenn	5	....	....	....	....	....	....	....	5	....	....	....	....
Humboldt	18	....	....	....	....	1	....	....	2	7	4	2	2
Imperial	48	....	....	....	....	6	19	13	5	3	2	....	....
Inyo	4	....	....	....	....	....	....	....	2	....	....	....	2
Kern	233	....	....	....	....	....	1	7	4	53	36	83	49
Kings	41	....	....	....	....	....	....	1	5	10	....	7	18
Lake	1	....	....	....	....	....	....	....	....	....	....	1	....
Lassen	5	....	....	....	....	....	....	....	....	....	2	1	2
Los Angeles	3,134	4	4	7	4	23	108	377	582	874	480	477	194
Madera	15	....	....	....	....	1	2	2	1	2	2	2	3
Marin	37	2	....	....	....	4	3	3	2	14	4	2	3
Mariposa	1	....	....	....	....	....	....	....	....	1	....	....	....
Mendocino	7	....	....	....	....	....	....	....	1	2	3	1	....
Merced	67	....	1	1	....	19	11	15	4	6	4	6	....
Modoc	4	....	....	....	....	....	....	....	2	1	1	....	....
Mono	1	....	....	....	....	....	....	....	1	....	....	....	....
Monterey	44	....	....	....	....	....	....	1	11	12	5	11	4
Napa	10	....	....	....	....	1	....	....	....	2	1	3	3
Nevada	4	....	....	....	....	....	....	....	....	1	2	....	1
Orange	102	....	....	....	....	1	2	9	20	37	16	11	6
Placer	13	....	....	....	....	....	....	....	5	1	2	2	3
Plumas	1	....	....	....	....	....	....	....	....	....	1	....	....
Riverside	81	....	....	1	1	4	7	5	20	7	16	5	15
Sacramento	82	....	....	....	....	....	....	4	3	22	23	19	11
San Benito	....	....	....	....	....	....	....	....	....	....	....	....	....
San Bernardino	82	....	....	....	....	....	7	22	14	16	8	9	6
San Diego	340	....	....	2	....	2	19	97	68	77	41	19	15
San Francisco	284	1	....	4	....	3	3	26	21	41	72	65	48
San Joaquin	74	....	....	....	....	2	2	8	9	14	11	21	7
San L. Obispo	14	....	....	....	....	....	....	1	2	1	7	2	1
San Mateo	105	....	....	....	....	....	2	6	10	24	23	24	16
Santa Barbara	99	....	....	....	....	....	1	8	17	38	19	11	5
Santa Clara	91	....	....	....	1	....	2	2	7	26	37	3	13
Santa Cruz	21	1	....	1	....	....	....	1	1	7	1	5	4
Shasta	1	....	....	....	....	....	....	....	....	....	....	....	1
Sierra	....	....	....	....	....	....	....	....	....	....	....	....	....
Siskiyou	4	....	....	....	....	....	....	....	2	....	....	1	1
Solano	39	3	1	....	....	....	....	2	10	8	6	3	6
Sonoma	31	....	....	....	....	....	7	3	9	....	1	8	3
Stanislaus	66	1	....	1	....	....	14	9	15	8	6	7	5
Sutter	10	....	....	....	....	....	....	....	1	1	4	1	3
Tehama	1	....	....	....	....	....	....	....	....	....	....	....	1
Trinity	1	....	....	....	....	....	....	....	....	....	....	1	....
Tulare	38	....	....	....	....	....	2	7	4	4	6	6	9
Tuolumne	3	....	....	....	1	....	....	....	1	1	....	....	....
Ventura	63	....	....	....	....	....	1	9	17	8	8	14	6
Yolo	11	1	....	....	....	....	....	1	3	4	....	1	1
Yuba	8	....	....	....	....	....	....	1	....	1	2	3	1
*Not allocated	22	....	1	1	....	....	1	5	3	9	1	1	....
Totals	5,796	13	8	23	9	71	225	671	938	1,437	948	921	532

*Cases "Not Allocated" represent patients ill before entering the state or those who contracted their illness traveling about the state throughout the incubation period of the disease. These cases are not chargeable to any one locality.

The New Birth and Death Certificates

WILTON L. HALVERSON, M.D., Dr.P.H., *State Director of Public Health*

Revised certificates for registration of live births, stillbirths and deaths were distributed to all physicians, hospitals and funeral directors in California for use beginning January 1, 1949. These forms were adopted in connection with the decennial revision of the standard certificates as worked out by the National Office of Vital Statistics through conferences with registration officials from each of the states.

The certificates for live birth and stillbirth are essentially unchanged. They present no problem to the physician, and require no discussion here, with a single exception. This is the provision on both certificates of an item for birth weight. It is believed that this information will be of great service to those studying the problem of prematurity.

The revision of the certificate of death brings a major change in the section "Cause of Death" to conform to recommendations of the World Health Organization. Mortality statistics have been as accurate as the original medical certifications of cause on which they stand, modified by treatment given these records by the statistical office. Both factors in this equation can now operate more efficiently and more to everyone's satisfaction.

As will be seen in the certificate section reproduced below, there is now a clear separation of the cause-of-death statement into Parts I and II with more specific explanations for each part. A great deal of history and thought is represented in this revision.

"Cause of death" is now defined as the condition, disease process, abnormality, injury or poisoning leading directly or indirectly to death. Symptoms or modes of dying such as heart failure or asthenia are not considered to be causes of death for statistical purposes. The problem of classifying causes of death for vital statistics is relatively simple when only one cause is involved, but in many cases two or more conditions contribute to death. Traditionally, one of these causes has been selected for vital statistics and described with little uniformity as the "primary cause," "principal cause," et cetera. The "Manual of Joint Causes" has been utilized since 1914 for arbitrary selection of the statistical cause of death. It is now obsolete and will no longer be used.

It was agreed by the revision conference that the "cause" to be tabulated hereafter should be the underlying cause of death. In the past this cause too has been selected in various ways in different countries. The principle now adopted defines the underlying cause of death as (a) the disease or injury which initiated the events leading directly to death, or (b) the circumstances of the accident or violence which produced the fatal injury. To assure uniform application of this principle, utilization of the new medical certification form is mandatory.

This form makes the physician responsible for indicating the train of events which resulted in death. The certifying medical practitioner is the only one in a position to decide which of the conditions led directly to death, and to state the antecedent conditions, if any.

In Part I of the section (Item 19-I) reproduced here is reported the cause leading directly to death (line IA), and also the antecedent conditions (lines IB and IC) which give rise to the cause reported in line IA—the underlying cause being stated last in the sequence of events. However, no entry is necessary in lines IB and IC if the disease or conditions leading directly to death, stated in line IA, describe completely the series of events.

In Part II (Item 19-II) is entered any other significant condition which unfavorably influenced the course of the morbid process, and thus contributed to the fatal outcome, but which was not related to the disease or condition directly causing death.

In summary, the manner in which the physician enters the cause of death will be the deciding factor in determining for statistical purposes the underlying cause—which of course is the essence of the data on the certificate. The new plan eliminates the old procedure of using an arbitrary manual to select the statistical cause of death when more than one condition is certified by the attending physician. Revised classification procedure and the modified form of the medical certificate of cause of death have both been adopted as uniform international aids to more accurate and more comparable death statistics.

CAUSE OF DEATH (Enter only one cause per line for (A), (B) and (C))	19-I. This does not mean the mode of dying such as heart failure, asthenia, etc. It means the disease, injury or complications which caused death.	19-IA Disease or Condition Directly Leading to Death	◀	APPROXIMATE INTERVAL BETWEEN ONSET AND DEATH
	ANTECEDENT CAUSES Morbid conditions, if any, giving rise to the above cause (A) stating the underlying cause last.	19-IB Due to	◀	
		19-IC Due to	◀	
	19-II. Conditions contributing to the death but not related to the disease or condition causing death.	19-II. Other Significant Conditions	◀	

(The above is not an exact reproduction: the form to be used is somewhat larger and more space is provided for the required notations.)

BOOK REVIEWS

TECHNIQUE OF TREATMENT FOR THE CEREBRAL PALSY CHILD. By Paula F. Egel, Cerebral Palsy Director, Children's Hospital, Buffalo, N. Y. 203 pages, 49 illustrations. The C. V. Mosby Company, St. Louis, Mo., 1948. $3.50.

The author of this little manual, while not a physician, is clearly a physical therapist of ability and wide experience in the field of cerebral palsy. The introductory chapters on the history and classification of spastic disorders are sketchy and in some respects not in harmony with the newer developments in the functional aspects of neuroanatomy; e.g., the assignment of the stretch reflexes to the frontal lobes is incorrect. Most of the volume, and the really valuable part, is coupled with descriptions in detail of the various exercises, apparatus and devices used in the treatment of spastic children, abundantly illustrated with excellent photographs. At the end, there are a six-page list of required apparatus and equipment, an appendix (by Moir P. Tanner) on the organization of a cerebral palsy department in a children's hospital, and an adequate index.

While the main usefulness of the book will be to physical therapists working under competent medical direction, it will also be of interest as a reference source to anyone dealing professionally with spastic children, or contemplating the organization of facilities for their care.

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SEX VARIANTS, A STUDY OF HOMOSEXUAL PATTERNS. By George W. Henry, M.D. (With sections contributed by specialists in particular fields). Sponsored by Committee for the Study of Sex Variants, Inc. Paul B. Hoeber, Inc., one volume edition, 1948.

Homosexuality has presented a serious problem for many years. The community's attitude to the homosexual is usually a revengeful and punishing one, and this causes him more concern than any anxiety he may have over his sex variance. How much of the aversion the public has for him is an unconscious counter-reaction to its own latent homosexuality and how much is an inherent dislike for anything or anyone who is "different" in personality makeup and behavior is difficult to ascertain. It must be remembered that homosexual behavior of the kind that brings itself to the attention of the police is not characteristic of homosexual persons in general, any more than heterosexual behavior in a setting which leads to action by the police is characteristic of most people. It is the acts of the homosexual who may indulge in behavior offending "public decency," such as seducing the young, carrying out abnormal sexual practices for monetary gain, or soliciting, which arouse public wrath and which come to the attention of the public, and these can give a very distorted view of the general problem.

This volume is an encyclopedic work on the problem of sex variation in men and women. Formerly published in 1941 in two volumes, the present publication is in one, and consists of carefully collected data on the biographies of 80 sex variants. The facts are presented in an unprejudiced manner without preconceived concepts or theoretical speculation so that the reader may draw his own conclusions from the histories. These were obtained in as great detail as possible from the subjects who were, for the most part, members of professional groups. A "modified free association method" was used, and rechecked two years later. The cases were divided equally between men and women. Thorough physical examinations, including a pelvic examination of the women, were done, and x-ray examinations of the skull and pelvis made. A number of the men submitted specimens of semen for study and determination, and Terman-Miles psychological tests, devised to show differences between men and women, were administered. The histories are recorded in autobiographical form, and are followed by a comment by the author succinctly reviewing the more important aspects of the case. Records of bisexuals, homosexuals, and those with "narcissistic" psychosexual behavior are presented.

The author believes that the sex variant remains at an immature level of sexual adjustment because of constitutional deficiences, the influences of family patterns of sexual adjustment, or because of lack of opportunities for psychosexual development. Certainly, in general, structural anatomical or physiological deficiencies are difficult to demonstrate in most sex variants. For the sake of comparison, detailed hormonal studies must have been done, although, from what data there are at hand, there is little to indicate how the distribution of male and female hormones of the sex variant differs from the so-called normal. Family patterns of dominance and submission, and of masculinity and femininity, are of importance in that "a high proportion of masculinity in the females and of femininity in the males of a family is most likely to result in sex variants among the succeeding generations." Presumably Doctor Henry is here equating aggressive, dominant traits with masculinity, and dependent, submissive ones with femininity, masculinity in the female being manifested in aggressive occupations, aggressive attitudes to society, and intolerance of the situation requiring her to be a wife and mother, and femininity in the male being manifested in dependence on a more aggressive male or female, or through compensatory striving for the virility of a Don Juan. The author rightfully emphasizes that it is scientifically inaccurate to classify persons as fully male or female in regard to these traits.

As yet, society has no solution for the problems of the sex variant. He may on occasion be helped by psychotherapy. Punishment and incarceration in a penal institution certainly have proven of no value. Only further study and investigation will lead to fruitful clues as to the best methods of management in the future.

This volume is a storehouse of information which should prove useful to physicians, social workers, educators, lawyers, penologists, and probation officers who deal often with this complicated problem.

* * *

DETAILED ATLAS OF THE HEAD AND NECK. By Raymond C. Truex, M.S., Ph.D., Associate Professor of Anatomy, College of Physicians and Surgeons, Columbia University and Carl E. Kellner, Artist, Department of Anatomy, College of Physicians and Surgeons, Columbia University. Oxford University Press, New York, N. Y. 1948. $15.00.

Truex and Kellner's Detailed Atlas of the Head and Neck is an excellent book both in regard to portraying actual and detailed dissection and for the superb colored drawings. The Oxford University Press is complimented on its use of the best paper and materials in producing the careful dissections and illustrations.

The brain and the regional neuroanatomy show relationships with fascia, muscles, vessels, nerves and bones that is graphically revealing to the student and to the practitioner.

The orbit and its contents, the sinuses and paranasal sinus, mouth and larynx are illustrated in detail.

Frontal and transverse sections of the head and neck give detailed studies with the vessels and nerves in color.

This is an atlas valuable to the student interested in topographical relations, and also to the practitioner and those specializing in such fields as neural, dental and maxillofacial surgery, otolaryngology, and even ophthalmology and anesthesiology.

YOUR BABY—THE COMPLETE BABY BOOK FOR MOTHERS AND FATHERS. By Gladys Denny Shultz, Contributing Editor, Ladies' Home Journal and Lee Forrest Hill, M.D., Former President, American Academy of Pediatrics. Photography by Joseph Di Pietro, Line Drawings by Reisie Lonette, Doubleday & Company, Inc., Garden City, N. Y., 1948. $3.50.

Your Baby—The Complete Baby Book for Mothers and Fathers is a large and handsomely printed book on baby care. It contains numerous photographs and drawings particularly suited to a mother with her first child. It goes into great detail in a manner which will answer many of her questions and allay many of her fears. Without being dogmatic it reflects the latest changes in pediatric thinking in the matter of infant and child care.

Particular attention is paid to the period of pregnancy and preparation for the arrival of an infant. Particular attention is also paid to the father and there are numerous suggestions concerning his new role in the family. Its very personal "Dad and Mother" style may not appeal to all parents, however, particularly fathers.

It should prove a useful and popular addition to the numerous books available on the subject of Baby Care.

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HALLMARKS OF MANKIND. By Frederic Wood Jones, D.Sc., M.B., B.S., F.R.S., F.R.C.S., Sir William Collins Professor of Human and Comparative Anatomy, Royal College of Surgeons of England. The Williams and Wilkins Co., Baltimore, Maryland, 1948. $2.50.

This book of 86 pages was developed from two lectures given in 1947 by the distinguished British anatomist, Frederic Wood Jones, who ably discusses the story of the ancestry of man as deducted from the newer knowledge of the anatomy of Primates and the newer paleontological discoveries.

The popularity of Darwin's "Descent of Man" and Huxley's "Man's Place in Nature" does not of necessity make them correct; as Jones shows, man is an extremely primitive type and has "his own remarkable structural specializations that distinguish him from all other mammals and appear to be his very ancient hallmarks."

One hopes that the findings and arguments of Jones will supplant those of Darwin and Huxley and thereby prevent such stupid events as the trial of a teacher in Tennessee about the doctrine of evolution.

This little volume will be read by those who realize that the existing Primates "are a complex assemblage and not a simple phylogenetic series," and who wish to learn more of the most important event to occur in the evolution of living things, namely, bodily erectness.

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A.M.A. INTERNS' MANUAL. 209 pages. W. B. Saunders Company, Philadelphia, 1948. $2.25.

This Interns' Manual is a useful compendium for the intern and has sections on the internships and residencies, simple clinical and laboratory data, drug administrations and a short Materia Medica, a section on acute poisoning, and one on diet and nutrition, physical medicine, and the legal aspects of intern practice. The book will undoubtedly serve a useful function but it lacks the details of medical emergencies seen in the "Handbook of Medical Emergencies" by the Harvard University Press, and it does not provide the detail that is available in the complete publication, "The Physician's Handbook," by the University Medical Publishers of Palo Alto.

Nevertheless, the A.M.A. Interns' Manual contains some information not present in either of the other two books mentioned above.

The Manual can be recommended as a reliable guide to the physician beginning his internship.

MANUAL OF UROLOGY. By R. M. LeComte, M.D., F.A.C.S., formerly Professor of Urology, Georgetown University. Fourth Edition. The William and Wilkins Company, Baltimore, Maryland, 1948. $4.00.

LeComte's "Manual of Urology" is a suitable book for the general practitioner who sees an occasional urologic case. It is a good text for the medical student or for the part-time urologist to use as a reference work in reviewing the ordinary office procedures. The book is written simply, without complicated discussions, in most cases giving Le Comte's own views on various diseases. The treatment of urinary infection by the antibiotics and the new chemical drugs has been brought up to date. The illustrations are few but clear-cut, and an excellent bibliography on the various chapters is appended. The book is well printed, and is an excellent value for those who need, as LeComte calls his work, a manual of urology. LeComte makes no claim that the book is an all-inclusive text, and it would be of little value to the experienced urologist.

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ABDOMINAL OPERATIONS. By Rodney Maingot, F.R.C.S. Eng., Surgeon to the Royal Free Hospital, London. Second Edition. 1298 pages, 1051 illustrations. Appleton-Century-Crofts, Inc., New York, 1948. $16.00.

The evolution of surgical technique is progressing at an extremely rapid pace. Operative procedures considered impossible become, in a few months, quite commonplace procedures. To write a textbook which is completely up to date becomes, therefore, an ever-increasingly difficult task. This, however, has been nobly accomplished in Maingot's book, "Abdominal Operations."

The author has in each chapter drawn up the latest references and descriptive illustrations of outstanding authorities, both European and American. Most of these are American but other authorities are not overlooked as is sometimes the custom of American writers. The various surgical techniques are exceptionally well illustrated and all discussions are clear and to the point.

In procedures where there are differences of opinion by many authorities, the writer has endeavored to give, fairly and concisely, the pros and cons of each procedure. Among these are noted such problems as in: abdominal perineal resection; abdominal colostomy versus pull-through; anterior versus posterior gastrojejunostomy in gastric resection; open versus closed intestinal anastomosis; the question of primary anastomosis in low rectosigmoid lesions, and many others.

It must be kept in mind that the book covers only abdominal surgery. Gynecological and urological abdominal procedures such as ureteral transplants are not included. The thoracic abdominal approach to lesions of the cardiac end of the stomach is, however, illustrated.

The book can be recommended as the most modern contribution among textbooks on abdominal surgery.

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HUMAN BIOCHEMISTRY. By Israel S. Kleiner, Ph.D., Professor of Biochemistry and Director of Department of Physiology and Biochemistry, New York Medical College. With 77 text illustrations and five color plates. Second Edition. The C. V. Mosby Company, St. Louis, Mo., 1948. $7.00.

This text contains an enormous amount of useful information in a very concise form. It is well organized and very broad in its scope. It should be very useful for the student or practitioner who wishes to get a bird's-eye view of chemical aberrations in any disease in its briefest form. The book does not contain detailed information on most medical chemistry, although some sections are quite extensive. There is no description of analytic methods, but much discussion of the interpretation of the results. The integration of the material is good, but suffers from some of the troubles which beset any non-medical writer who ventures into clinical

interpretations. There are inaccuracies and some frank errors. Nevertheless, the book should be a very useful one as a quick reference source for students of medical chemistry.

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THE CLINICAL APPRENTICE. A Guide for Students of Medicine by John M. Naish, M.D. (Cantab.), Lately Tutor in Medicine, Bristol University and John Apley, M.D. (Lond.), Honorary Pediatrician, Royal United Hospital, Bath. The William and Wilkins Co., Baltimore, Maryland, 1948. $4.50.

This is a small book written for English students beginning their clinical training in medicine. The authors have designed it to help the student who is working in physical diagnosis. At this stage of his career he has difficulty in correlating the tremendous amount of information which he has accumulated in his preclinical sciences, the detailed examination which he is told to follow and the apparently brief examination with which the experienced practitioner contents himself. The book makes no attempt to give a comprehensive account of the methods of examination and the difficulties associated with the mastery of physical diagnosis, but emphasizes certain essentials in order to make the techniques of physical examination stand out as vivid and understandable.

For a small book it has a great deal of useful information. While it is essentially concerned with physical diagnosis, it also represents a summary of the medical philosophy of the authors. It is practical and commonsensical in its approach. It has a number of well drawn and pointed diagrams. It may be helpful to American students as a reference to certain aspects of physical diagnosis but can not be considered in the light of replacing any of the more comprehensive books which are available at present.

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STERILITY AND IMPAIRED FERTILITY, Pathogenesis, Investigation and Treatment. By Cedric Lane-Roberts, C.V.O., M.S., F.R.C.S., F.R.C.O.G.; Albert Sharman, M.D., Ph.D., M.R.C.O.G.; Kenneth Walker, M.A., M.D., B.C. (Cantab.), F.R.C.S., F.I.C.S.; B. P. Wiesner, D.Sc., Ph.D., F.R.S.E.; and Mary Barton, M.B., B.S. Second Edition. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, New York, N. Y., 1948. $6.50.

Cedric Lane-Roberts, Albert Sharman, gynecologists, and Kenneth Walker, urologist, collaborated with B. P. Wiesner, biologist, as authors of the first edition. Mary Barton, first assistant to the Fertility Clinic, Royal Free Hospital, London, has been added to the list of authors of the second edition. This volume is a general review of the problem of infertility in the human and deals with both the male and female factors. It is apparently the first work of this kind published in England and it is dignified by a masterly introduction from the pen of Lord Horder.

From our viewpoint there should have been a better revision for the second edition. There are many omissions of important recent advances in our knowledge but the subject matter covered is extensive and will prove of great value to the student and general practitioner who desire a groundwork for this study. To the great amount of compiled material the Lane-Roberts group also have added much from their own clinical and laboratory experience.

There is no other single volume that will give the reader the amount of information, much in detail, that is contained in this handy book. It is of worth as it presents a review, incomplete as it is, of valuable research and laboratory findings, which otherwise would entail a great amount of time and laborious search to obtain.

The first three chapters constitute an excellent introduction and general survey of the problem. Chapters III through VI deal with fertility and impaired fertility of the male. The chapters on The Constitution of Semen and Assay of Fertility will give the reader an excellent over-all view as well as considerable detail in these essentials. However, the authors' statement in the summary that "the assay must be based primarily upon the morphological characteristics of the spermatozoa and their capacity to invade ovulatory cervical mucus" will not be accepted by the majority of investigators, as the number of spermatozoa is undoubtedly a determining factor.

Many of the opinions expressed by the authors are not in accord with those of most investigators in the field. For instance, impaired fertility is often indicated in the semen only by a reduction in the number of spermatozoa, while their morphology remains normal. Yet the statement is made by the authors that in checking the results of treatment by repeated semen tests it is seldom necessary to do more than study the morphology of the spermatozoa.

Chapters VII and VIII are concerned with infertility in the female. The authors first deal with theoretical considerations, stages in investigation, disturbances of endocrine mechanism, and then with therapeutic procedures, including special measures, surgical methods and an adequate consideration of artificial insemination. However, the reviewer feels that some parts of the book were written by a good clinician who was somewhat led astray by the glittering findings of the laboratory. Some of the discussions relating to the endocrine factors, for instance, are tinctured with too many speculations based on animal experimentation and not proven as applicable to clinical work. This is especially seen in the sections which deal with the usage of tests for gonadotropic and estrogenic hormones in the blood and urine, procedures which in this country have remained within the sanctuary of research groups and have been shown generally impractical for the practicing physician. The same applies to some questionable recommendations regarding endocrine therapy.

This book can be accepted as a good general review and most of the recommendations for investigation and therapy are in keeping with the practices advocated by American authorities.

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PATHOLOGY. Edited by W. A. D. Anderson, M.A., M.D., F.A.C.P., Professor of Pathology and Bacteriology, Marquette University School of Medicine, Milwaukee, Wisconsin. The C. V. Mosby Co., St. Louis, Mo. $15.00.

This book is different from other English language textbooks of pathology, in that it represents the work of 32 collaborators. This has resulted in an authoritative presentation of most of the important fields of pathology. The discussions on the whole are somewhat more detailed than those in other textbooks in English, and this has been accomplished without introducing detail to a confusing degree, yet the reader receives in most chapters a satisfactory idea of our incomplete understanding of the pathogenesis of many diseases.

Although a few recent contributions to pathology have not been included, this first edition is up-to-date. and several modern studies, such as the effects of radiation, are discussed in detail. The skin, the bones and the nervous system are given more comprehensive treatment than in most other textbooks.

The book is well illustrated, with ten plates in color. Most of the many photomicrographs are excellent. The lines of type are more closely placed than in most comparable textbooks, but the text is readable, and without this space-saving device, it would probably have been impossible to include all of the material in the one volume, which, as it is, has 1,426 pages.

This textbook should be useful for students, and it should be a valuable reference book for physicians.